

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: John Chu Examiner #: 68314 Date: 4/29/04  
 Art Unit: 1752 Phone Number 30 571-272-1329 Serial Number: 10/005,796  
 Mail Box and Bldg/Room Location: Rm 9d-51 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Polybenzoxazole Precursor, Photoresist Solution, Polybenzoxazole

Inventors (please provide full names): Hausmann, Jörg ; Maier, Gerhard ; Schmid, Günter ; Sezi, Roca ;

Earliest Priority Filing Date: 3/9/01

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

- Please search the polymer below (attached)
- Inventive step in the variable "T" defined as formulae 5, 6, 7, 8, 9 and 15-3.4. (~~1-4~~)
- Also search use of polybenzoxazole in a photoresist solution / composition with a diazoketone (see claim 7)

\*\*

Thank you!  
John Chu

## STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

=> file reg

FILE 'REGISTRY' ENTERED AT 16:16:37 ON 03 MAY 2004

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

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STRUCTURE FILE UPDATES: 30 APR 2004 HIGHEST RN 678535-01-8

DICTIONARY FILE UPDATES: 30 APR 2004 HIGHEST RN 678535-01-8

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file caplus

FILE 'CAPLUS' ENTERED AT 16:16:40 ON 03 MAY 2004

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FILE COVERS 1907 - 3 May 2004 VOL 140 ISS 19

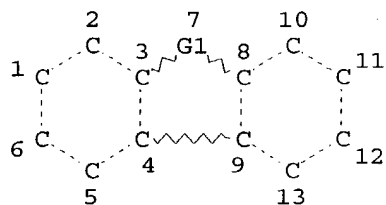
FILE LAST UPDATED: 2 May 2004 (20040502/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que

L95

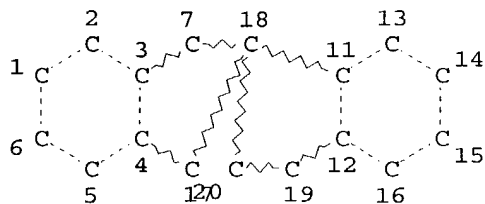
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VAR G1=C/N/O  
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
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 NUMBER OF NODES IS 13

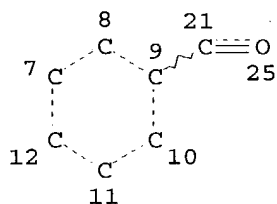
STEREO ATTRIBUTES: NONE  
 L98 STR



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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
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 NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE  
 L112 STR



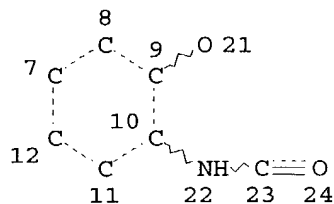
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
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NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L113 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L115 802 SEA FILE=REGISTRY SSS FUL L112 AND L113 AND (L98 OR L95)

L116 444 SEA FILE=CAPLUS ABB=ON PLU=ON L115

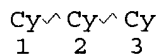
L121 5 SEA FILE=CAPLUS ABB=ON PLU=ON L116 AND (PHOTORESIST? OR  
?RESIST?) (5A) (SOLUTION OR LIQUID OR FLUID OR AQUEOUS OR AQ OR  
COMPOS?)

L123 12 SEA FILE=CAPLUS ABB=ON PLU=ON POLYBENZOXAZOLE? AND L116

L124 28 SEA FILE=CAPLUS ABB=ON PLU=ON SEMICONDUCT? AND L116

L125 38 SEA FILE=CAPLUS ABB=ON PLU=ON L121 OR (L123 OR L124)

L144 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE

L145 STR

Cy 1

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS PCY AT 1

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 1

STEREO ATTRIBUTES: NONE

L146 SCR 1842

L148 5639 SEA FILE=REGISTRY SSS FUL L112 AND L113 AND (L144 OR L145) AND L146

L149 2771 SEA FILE=CAPLUS ABB=ON PLU=ON L148

L150 49 SEA FILE=CAPLUS ABB=ON PLU=ON L149 AND (PHOTORESIST? OR RESIST?) (5A) (SOLUTION OR FLUID OR LIQUID OR AQUEOUS OR AQ OR COMPOS?)

L151 13 SEA FILE=CAPLUS ABB=ON PLU=ON L150 AND POLYBENZOXAZOLE?

L152 21 SEA FILE=CAPLUS ABB=ON PLU=ON L150 AND SEMICONDUCT?

L153 26 SEA FILE=CAPLUS ABB=ON PLU=ON L151 OR L152

L154 62 SEA FILE=CAPLUS ABB=ON PLU=ON L125 OR L153

=> d ti 1-62 l154

L154 ANSWER 1 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Positive photoimaging precursor compositions with high resolution and sensitivity, and **semiconductor** electric components and organic electroluminescence devices using them

L154 ANSWER 2 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them

L154 ANSWER 3 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Positive-working photosensitive heat-**resistant** resin precursor **compositions** for **semiconductor** devices

L154 ANSWER 4 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Heat-**resistant** resin precursor **compositions** and **semiconductor** devices therewith

L154 ANSWER 5 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Photosensitive heat **resistant** resin precursor **composition**

L154 ANSWER 6 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Polymer **compositions** with excellent **resistance** to oxidative decomposition and organic electroluminescent elements using them as insulating layers

L154 ANSWER 7 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Photosensitive resin **composition** and method for preparing heat-**resistant** resin film

L154 ANSWER 8 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Plastic optical waveguide material

L154 ANSWER 9 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Polyamide-based varnish compositions for **semiconductor** device insulating microporous films

L154 ANSWER 10 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Positive-working photosensitive resin compositions containing polyimide or polyoxazole precursors, pattern formation using them, and electronic devices having the pattern

L154 ANSWER 11 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Porous **polybenzoxazole** films having extremely low permittivity, their preparation, and their use in **semiconductor** devices

L154 ANSWER 12 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Heat-resistant **polybenzoxazole** precursors with excellent moldability, **polybenzoxazoles**, and dielectric materials and **semiconductor** devices using them

L154 ANSWER 13 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI High-temperature-**resistant** deep-UV-sensitive **photoresist composition** for forming dielectric or buffer layer in microelectronics

L154 ANSWER 14 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI High-temperature-**resistant photoresist composition** for forming dielectric or buffer layer in microelectronics

L154 ANSWER 15 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Polybenzoxazole** precursors, their condensed crosslinked **polybenzoxazoles**, insulating films, and **semiconductor** devices

L154 ANSWER 16 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance

L154 ANSWER 17 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Materials for organic insulating films and organic insulating films having low dielectric constants and good heat resistance

L154 ANSWER 18 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Composition and process for the production of a porous layer on substrates using the composition

L154 ANSWER 19 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides

L154 ANSWER 20 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Positive-working **photoresist** polyimide precursor resin **composition**

L154 ANSWER 21 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Epoxy resin compositions with low water absorption, dielectric constant, and good solder-heat resistance and preregs using them

L154 ANSWER 22 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

- TI Precursor composition for positive photosensitive resin suitable for fabricating display
- L154 ANSWER 23 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Alkali-developable positive-working photosensitive resin precursor compositions
- L154 ANSWER 24 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Fluorenediamine-derived polyamide, positively-working photosensitive polyamide composition, and **semiconductor** device using the composition
- L154 ANSWER 25 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Heat-**resistant** resin **compositions** useful for **semiconductor** devices with good adhesion and low absorbance
- L154 ANSWER 26 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Polyamide compositions and their dielectric films with excellent heat resistance and water absorption
- L154 ANSWER 27 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Synthesis and properties of novel cardo aromatic poly(ether-benzoxazole)s
- L154 ANSWER 28 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Positive-working photosensitive polyamide compositions having high sensitivity and **semiconductor** devices fabricated by using the same
- L154 ANSWER 29 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI **Polybenzoxazole** precursors, **polybenzoxazoles**, and **photoresist solutions** containing the precursors
- L154 ANSWER 30 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Positive-working photosensitive resin precursor composition
- L154 ANSWER 31 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Heat-**resistant** resin **compositions** with improved adhesion with substrates
- L154 ANSWER 32 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Heating of patterned heat-**resistant** resin **composition** film
- L154 ANSWER 33 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Positive-working photosensitive resin precursor composition
- L154 ANSWER 34 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Photosensitive resin precursor composition
- L154 ANSWER 35 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Alkaline-developable photosensitive heat-**resistant** polymer precursor **composition**
- L154 ANSWER 36 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Positive photosensitive composition, positive photosensitive lithographic

plate and method for forming positive image

L154 ANSWER 37 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Photosensitive heat-resistant resin precursor  
composition

L154 ANSWER 38 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Composition of photosensitive polyimide precursor

L154 ANSWER 39 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Manufacture of LSI circuit using water-soluble positive-working  
photoresist composition

L154 ANSWER 40 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Preparation of polybenzoxazoles, polybenzimidazoles, and  
polybenzothiazoles

L154 ANSWER 41 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic imaging method

L154 ANSWER 42 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Optical information copying media

L154 ANSWER 43 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photoreceptors using bisazo pigment as  
charge-generating agent

L154 ANSWER 44 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photoreceptors containing a bisazo pigment as a  
charge-generating agent

L154 ANSWER 45 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photoreceptors containing bisazo pigments

L154 ANSWER 46 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photoreceptor for semiconductor laser  
containing fluorenebisazo derivatives as charge-generating substance

L154 ANSWER 47 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Bisazo dye-containing electrophotographic photoreceptor

L154 ANSWER 48 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photoreceptors

L154 ANSWER 49 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Sensitive materials in electrophotography

L154 ANSWER 50 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photoreceptors

L154 ANSWER 51 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photosensitive materials

L154 ANSWER 52 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrophotographic photosensitive materials



L154 ANSWER 53 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic plates

L154 ANSWER 54 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Composite electrophotographic photosensitive materials

L154 ANSWER 55 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic photosensitive materials

L154 ANSWER 56 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic photosensitive materials

L154 ANSWER 57 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic photosensitive materials

L154 ANSWER 58 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic photosensitive materials

L154 ANSWER 59 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic photosensitive materials

L154 ANSWER 60 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrophotographic photosensitive materials

L154 ANSWER 61 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Trisazo benzocarbazole compounds for electrophotography

L154 ANSWER 62 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Multilayer electrophotographic plates

=> d ibib abs hitstr ind total l154

L154 ANSWER 1 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2004:219168 CAPLUS  
DOCUMENT NUMBER: 140:278413  
TITLE: Positive photoimaging precursor compositions with high  
resolution and sensitivity, and **semiconductor**  
electric components and organic electroluminescence  
devices using them  
INVENTOR(S): Suwa, Atsushi; Fujita, Yoji; Tomikawa, Masao  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 37 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004085622	A2	20040318	JP 2002-242586	20020822
PRIORITY APPLN. INFO.:			JP 2002-242586	20020822
AB The <b>compns.</b> comprise (A) alkali-soluble heat-resistant				

resin precursors (e.g. polyamic acids), (B) heat-polymerizable compds. having phenolic OH and ethylenically unsatd. groups (CH<sub>2</sub>)<sub>a</sub>CR<sub>3</sub>:CR<sub>1</sub>R<sub>2</sub> (R<sub>1</sub>-3 = H, C1-20-alkyl, phenoxy; a = 0-5) and/or those having acetylenically unsatd. groups (CH<sub>2</sub>)<sub>a</sub>C.tplbond.CR<sub>1</sub> (R<sub>1</sub>, a = same as above), and (C) quinonediazide esters.

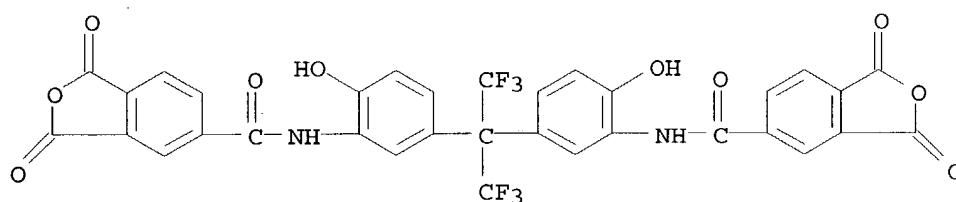
IT 223255-30-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM G03F007-037

ICS C08F012-34; C08F038-00; C08G069-26; G03F007-025; G03F007-027; G03F007-40; H01L021-027

CC 74-4 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 76

ST pos photoimaging compn polyamic acid sensitivity; org electroluminescence device polyimide pos photoimaging; **semiconductor** device acetylenyl ethenyl photoimaging insulator

IT Electroluminescent devices

(displays; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Luminescent screens

(electroluminescent; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polyethers, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polysiloxanes, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polyether-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Fluoropolymers, preparation

Polysiloxanes, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polyether-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Fluoropolymers, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polyether-polysiloxane-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polysiloxanes, preparation

Polysulfones, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polyketone-polysulfone-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polyethers, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polysiloxane-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polyketones

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polysiloxane-polysulfone-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polyethers, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-siloxane-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polyimides, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polyamic acids

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

IT Polysiloxanes, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-polyimide-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

- IT Fluoropolymers, preparation  
Polysiloxanes, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-polyimide-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Fluoropolymers, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-polyimide-siloxane-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyamic acids  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-polysiloxane-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyamic acids  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-polysiloxane-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyimides, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-siloxane-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyimides, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-siloxane-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyethers, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-, fluorine-containing; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polysiloxanes, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-polyketone-polysulfone-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)
- IT Polysulfones, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-polyketone-siloxane-; pos. photoimaging polyamic acid compns. with high resolution and sensitivity for **semiconductor** devices and organic EL displays)

- IT Polyketones  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-polysulfone-siloxane-; pos. photoimaging polyamic acid  
compns. with high resolution and sensitivity for **semiconductor**  
devices and organic EL displays)
- IT Polyethers, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-siloxane-, fluorine-containing; pos. photoimaging polyamic acid  
compns. with high resolution and sensitivity for **semiconductor**  
devices and organic EL displays)
- IT Polyethers, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-siloxane-; pos. photoimaging polyamic acid compns. with high  
resolution and sensitivity for **semiconductor** devices and organic EL  
displays)
- IT Polyamic acids  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(polyketone-polysiloxane-polysulfone-; pos. photoimaging polyamic acid  
compns. with high resolution and sensitivity for **semiconductor**  
devices and organic EL displays)
- IT Polyimides, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyketone-polysulfone-siloxane-; pos. photoimaging polyamic acid  
compns. with high resolution and sensitivity for **semiconductor**  
devices and organic EL displays)
- IT Electric insulators  
Photoimaging materials  
**Semiconductor** devices  
(pos. photoimaging polyamic acid compns. with high resolution and  
sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyimides, preparation  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos. photoimaging polyamic acid compns. with high resolution and  
sensitivity for **semiconductor** devices and organic EL displays)
- IT Polyamic acids  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(pos. photoimaging polyamic acid compns. with high resolution and  
sensitivity for **semiconductor** devices and organic EL displays)
- IT 112770-95-3  
RL: TEM (Technical or engineered material use); USES (Uses)  
(DAL-BPZ; pos. photoimaging polyamic acid compns. with high resolution and  
sensitivity for **semiconductor** devices and organic EL displays)
- IT 108-31-6DP, Maleic anhydride, reaction products with polyamic acids  
151402-72-1DP, aminophenol-terminated 281653-60-9P 433264-94-9DP,  
maleic anhydride-terminated  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos. photoimaging polyamic acid compns. with high resolution and

- sensitivity for **semiconductor** devices and organic EL displays)
- IT 25596-69-4P 27431-43-2P 33798-02-6P 129197-38-2P 157445-87-9P  
**223255-30-9P** 672294-83-6P 672310-56-4P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (pos. photoimaging polyamic acid compns. with high resolution and  
 sensitivity for **semiconductor** devices and organic EL displays)
- IT 591-27-5DP, 3-Aminophenol, reaction products with polyamic acids  
 672294-81-4P 672294-85-8P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
 use); PREP (Preparation); USES (Uses)  
 (pos. photoimaging polyamic acid compns. with high resolution and  
 sensitivity for **semiconductor** devices and organic EL displays)
- IT 79-94-7 80-05-7, Bisphenol A, reactions 99-57-0, 2-Amino-4-nitrophenol  
 99-63-8, Isophthaloyl chloride 106-95-6, Allyl bromide, reactions  
 122-04-3, 4-Nitrobenzoyl chloride 1066-54-2, Trimethylsilylacetylene  
 1107-00-2, 2,2-Bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride  
 1204-28-0, Trimellitic anhydride chloride 2421-28-5,  
 3,3',4,4'-Benzophenonetetracarboxylic dianhydride 3770-97-6  
 27955-94-8, TrisP HAP 35512-24-4, BIR-PTBP 36451-09-9 57138-54-2  
 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (pos. photoimaging polyamic acid compns. with high resolution and  
 sensitivity for **semiconductor** devices and organic EL displays)
- IT 110726-28-8, TrisP PA 151319-83-4, BisRS 2P  
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT  
 (Reactant or reagent); USES (Uses)  
 (pos. photoimaging polyamic acid compns. with high resolution and  
 sensitivity for **semiconductor** devices and organic EL displays)
- IT 843-55-0, Bis-Z 1745-89-7, DAL-BPA 2768-02-7, Vinyltrimethoxysilane  
 4286-23-1, p-Hydroxy- $\alpha$ -methylstyrene  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (pos. photoimaging polyamic acid compns. with high resolution and  
 sensitivity for **semiconductor** devices and organic EL displays)
- IT 38595-90-3P 151598-18-4P 383189-33-1P 672307-21-0P  
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);  
 USES (Uses)  
 (sensitizing agent; pos. photoimaging polyamic acid compns. with high  
 resolution and sensitivity for **semiconductor** devices and organic EL  
 displays)

L154 ANSWER 2 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:159428 CAPLUS

DOCUMENT NUMBER: 140:200659

TITLE: **Polybenzoxazoles** with low elastic modulus,  
 their precursors, and optical waveguides using them

INVENTOR(S): Tominaga, Yumiko

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004059761	A2	20040226	JP 2002-220848	20020730

PRIORITY APPLN. INFO.: JP 2002-220848 20020730

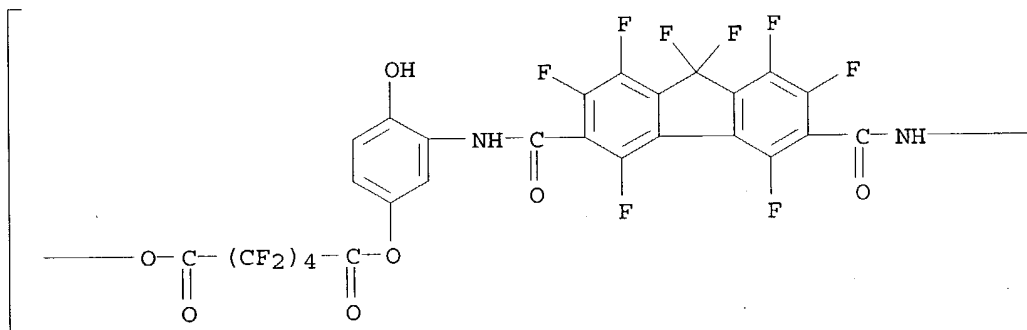
AB The precursors comprise [CONHY(OR1)(OR2)NHCOX]<sub>n</sub> [n = 2-1000; X = C<sub>6</sub>H<sub>4</sub>O<sub>2</sub>C(CF<sub>2</sub>)<sub>i</sub>CO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>, divalent organic group; Y = C<sub>6</sub>H<sub>3</sub>O<sub>2</sub>C(CF<sub>2</sub>)<sub>i</sub>CO<sub>2</sub>C<sub>6</sub>H<sub>3</sub>, tetravalent organic group; X and/or Y = the diester group; R<sub>1</sub>, R<sub>2</sub> = H, monovalent organic group; i = 1-10]. Thus, bis(4-amino-3-hydroxyphenyl) perfluoropentanedioate was polymerized with isophthaloyl chloride to give a **polybenzoxazole** precursor, which was applied on a glass plate and heated to give a **polybenzoxazole** film showing relative permittivity 2.3, 5% weight loss temperature 532°, elastic modulus 3 GPa, and water absorption 0.1%. Optical waveguides showing low optical loss were manufactured using the **polybenzoxazoles** as clad and core layers.

IT **660832-81-5P 660833-04-5P**  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

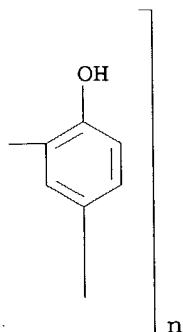
RN 660832-81-5 CAPLUS

CN Poly[oxy(2,2,3,3,4,4,5,5-octafluoro-1,6-dioxo-1,6-hexanediyl)oxy(4-hydroxy-1,3-phenylene)iminocarbonyl(1,2,4,5,7,8,9,9-octafluoro-9H-fluorene-3,6-diyl)carbonylimino(6-hydroxy-1,3-phenylene)] (9CI) (CA INDEX NAME)

PAGE 1-A

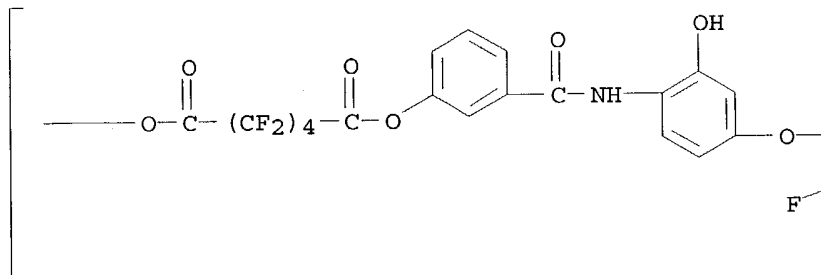


PAGE 1-B

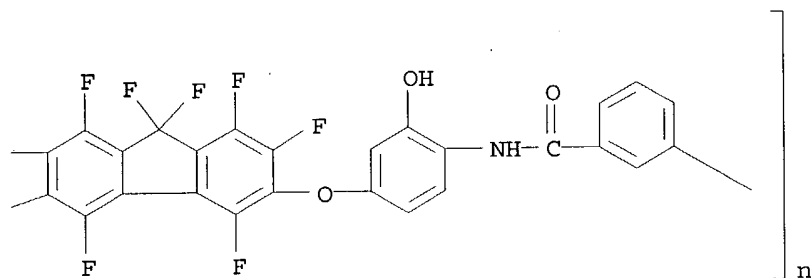


RN 660833-04-5 CAPLUS  
 CN Poly[oxy(2,2,3,3,4,4,5,5-octafluoro-1,6-dioxo-1,6-hexanediyl)oxy-1,3-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)oxy(1,3,4,5,7,8,9,9-octafluoro-9H-fluorene-2,6-diyl)oxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,3-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C08G073-22  
 ICS G02B006-12  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 37, 73  
 ST **polybenzoxazole** low elastic modulus optical waveguide; fluoro  
**polybenzoxazole** precursor optical waveguide  
 IT Polyesters, uses  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
 engineered material use); PREP (Preparation); USES (Uses)  
 (Polybenzoxazole-polyether-, fluorine-containing; manufacture of  
**polybenzoxazoles** with low elastic modulus, their precursors,  
 and optical waveguides using them)  
 IT Optical waveguides  
 (manufacture of **polybenzoxazoles** with low elastic modulus, their  
 precursors, and optical waveguides using them)  
 IT Polyesters, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamide-, fluorine-containing; manufacture of **polybenzoxazoles** with  
 low elastic modulus, their precursors, and optical waveguides using



- them)
- IT Polyethers, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyester-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Fluoropolymers, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyester-; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Fluoropolymers, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyester-polyether-; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Polyesters, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyether-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Polyesters, uses  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Polyethers, uses  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-polyester-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Fluoropolymers, uses  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-polyester-; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Fluoropolymers, uses  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-polyester-polyether-; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT **Polybenzoxazoles**  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)
- IT Polyamides, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyester-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyester-polyether-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

IT Polyamides, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyester-polyether-, fluorine-containing; manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

IT	660832-49-5P	660832-52-0P	660832-55-3P	660832-59-7P	660832-62-2P
	660832-66-6P	660832-75-7P	660832-80-4P	660832-83-7P	660832-85-9P
	660832-89-3P	660832-93-9P	660832-94-0P	660832-99-5P	660833-02-3P
	660833-03-4P	660833-06-7P			

RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

IT	660832-51-9P	660832-54-2P	660832-57-5P	660832-61-1P	660832-64-4P
	660832-72-4P	660832-82-6P	660832-87-1P	660832-91-7P	660832-96-2P
	660833-01-2P	660833-05-6P	660833-08-9P		

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

IT	660832-50-8P	660832-53-1P	660832-56-4P	660832-60-0P	660832-63-3P
	660832-69-9P	<b>660832-81-5P</b>	660832-86-0P	660832-90-6P	
	660832-95-1P	660833-00-1P	<b>660833-04-5P</b>	660833-07-8P	

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(manufacture of **polybenzoxazoles** with low elastic modulus, their precursors, and optical waveguides using them)

L154 ANSWER 3 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:118389 CAPLUS

DOCUMENT NUMBER: 140:147419

TITLE: Positive-working photosensitive heat-resistant resin precursor **compositions** for **semiconductor** devices

INVENTOR(S): Yumiba, Tomoyuki; Suwa, Atsushi; Tomikawa, Masao

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004045477	A2	20040212	JP 2002-199583	20020709
PRIORITY APPLN. INFO.:			JP 2002-199583	20020709
OTHER SOURCE(S):			MARPAT 140:147419	

AB The compns. with improved adhesion to substrates after heat-curing for interlayer insulator films and surface protection films of **semiconductor** devices, contain (A) polymers having main units [COR1(OH)p(CO2R3)nCONHR2(OH)q(CO2R4)ONH]m (R1, R2 = 2-8 valent C<sub>≥</sub>2 organic residue; R3, R4 = H, alkali metal ion, ammonium ion, C1-20 organic residue; m = 3-100,000; n, o = 0-2; p, q = 0-4; n + q > 0) and (B) compds. represented by R5R6C:N(CH2)a(SiR11R12O)bSiR13R14R15 or R7R8C:N(CH2)c(SiR16R17O)dSiR18R19(CH2)eN:CR9R10 (R5-R10 = C<sub>≥</sub>1 organic residue; R11-R19 = C1-6 hydrocarbyl, C1-6 alkoxy; at least one of R11-R15 and one of R16-R19 = C1-6 alkoxy). Thus, a varnish containing polyamic acid [prepared from 4,4'-diaminodiphenyl ether, 1,3-bis(3-aminopropyl)tetramethyldisiloxane, pyromellitic anhydride, and 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride] and 3-triethoxysilyl-N-(1,3-dimethylbutylidene)propylamine was applied on a Si wafer and heated to give a polyimide film showing high adhesion after pressure cooker test.

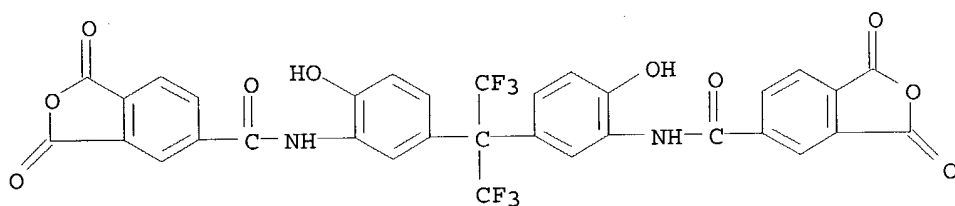
IT 223255-30-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for **semiconductor** device insulator and protection films)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)]



IT 261373-47-1P 652968-59-7P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for **semiconductor** device insulator and protection films)

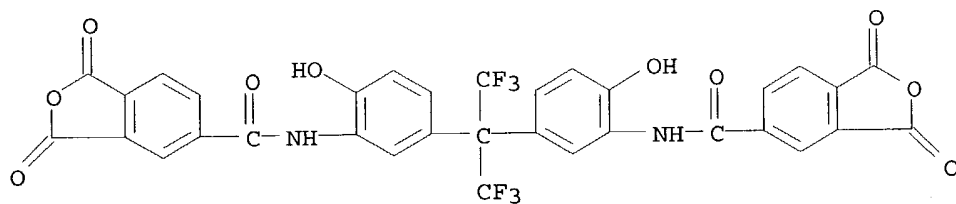
RN 261373-47-1 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)]

CM 1

CRN 223255-30-9

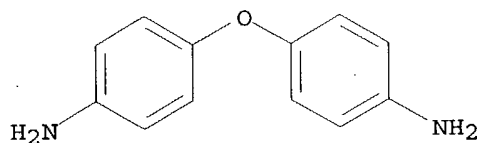
CMF C33 H16 F6 N2 O10



CM 2

CRN 101-80-4

CMF C12 H12 N2 O



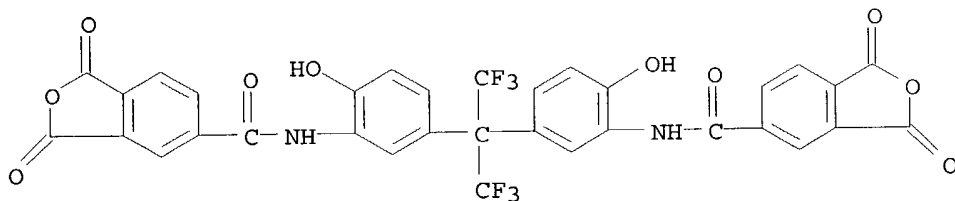
RN 652968-59-7 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 3-aminophenol and 4,4'-oxybis[benzenamine] (9CI)  
(CA INDEX NAME)

CM 1

CRN 223255-30-9

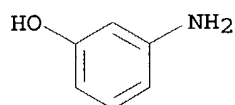
CMF C33 H16 F6 N2 O10



CM 2

CRN 591-27-5

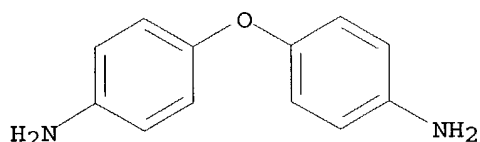
CMF C6 H7 N O



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



IC ICM G03F007-037

ICS G03F007-075; G03F007-085; H01L021-027

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 74, 76

ST heat resistance pos photopolymer precursor **semiconductor** device;  
insulator polyimide precursor polyamic acid aminoalkoxysilane blend;  
triethoxysilyldimethylbutylidenepropylamine polyamic acid blend polyimide  
film

IT Heat-resistant materials

(films; pos.-working photosensitive heat-resistant resin  
precursor **compns.** containing aminoalkoxysilanes for  
**semiconductor** device insulator and protection films)

IT Polyamides, uses

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or  
engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)

(fluorine-containing, hydroxy-containing; pos.-working photosensitive heat-  
**resistant** resin precursor **compns.** containing  
aminoalkoxysilanes for **semiconductor** device insulator and  
protection films)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)

(fluorine-containing; pos.-working photosensitive heat-resistant  
resin precursor **compns.** containing aminoalkoxysilanes for  
**semiconductor** device insulator and protection films)

IT Films

(heat-resistant; pos.-working photosensitive heat-resistant  
resin precursor **compns.** containing aminoalkoxysilanes for  
**semiconductor** device insulator and protection films)

IT Fluoropolymers, uses

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or  
engineered material use); PREP (Preparation); RACT (Reactant or reagent);

USES (Uses)

(polyamide-, hydroxy-containing; pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT Fluoropolymers, uses

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polybenzoxazole-; pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT Dielectric films

Photoimaging materials

Semiconductor devices

(pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT Polyamic acids

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT Polyimides, uses

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT 85342-62-7, NAI 105 119666-27-2 172491-61-1, 4NT 300

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT 129708-71-0P 201356-47-0P 213608-87-8P, 3,3',4,4'-Diphenyl ether tetracarboxylic acid dibutyl ester 220426-92-6P 223255-30-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(pos.-working photosensitive heat-resistant resin precursor compns. containing aminoalkoxysilanes for semiconductor device insulator and protection films)

IT 84329-58-8P, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-pyromellitic anhydride copolymer 232258-55-8P, 3,5-Diaminobenzoic acid-4,4'-diaminodiphenyl ether-3,3',4,4'-diphenyl ether tetracarboxylic acid dibutyl ester dichloride copolymer 261373-47-1P 652968-56-4P 652968-57-5P 652968-58-6P 652968-59-7P 652968-60-0P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(pos.-working photosensitive heat-resistant resin precursor

- compns.** containing aminoalkoxysilanes for **semiconductor** device insulator and protection films)
- IT 347147-75-5P 645385-91-7P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (pos.-working photosensitive heat-**resistant** resin precursor  
**compns.** containing aminoalkoxysilanes for **semiconductor** device insulator and protection films)
- IT 116229-43-7, 3-Triethoxysilyl-N-(1,3-dimethylbutylidene)propylamine 652968-55-3  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (pos.-working photosensitive heat-**resistant** resin precursor  
**compns.** containing aminoalkoxysilanes for **semiconductor** device insulator and protection films)
- IT 71-36-3, n-Butyl alcohol, reactions 121-90-4, 3-Nitrobenzoyl chloride 1204-28-0, Trimellitic anhydride chloride 1823-59-2, 3,3',4,4'-Diphenyl ether tetracarboxylic dianhydride 7719-09-7, Thionyl chloride 24424-99-5, Tert-Butyl dicarbonate 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (pos.-working photosensitive heat-**resistant** resin precursor  
**compns.** containing aminoalkoxysilanes for **semiconductor** device insulator and protection films)

L154 ANSWER 4 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:118071 CAPLUS

DOCUMENT NUMBER: 140:165070

TITLE: Heat-**resistant** resin precursor  
**compositions** and **semiconductor** devices therewith

INVENTOR(S): Yumiba, Tomoyuki; Minamihashi, Katsuya; Tomikawa, Masao

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004043779	A2	20040212	JP 2003-119531	20030424
PRIORITY APPLN. INFO.:			JP 2002-126061	A 20020426

AB Title compns. comprise (A) polymers having repeating units [COR1(OH)p(COOR3)nCONHR2(OH)q(COOR4)oNH]m as main components and (B) compds. (Z1)aR5(Z2)b, wherein R1, R2 = divalent-octavalent organic groups containing  $\geq 2$  carbon atoms; R3, R4 = H, alkali metal ion, ammonium ion, or C1-20 organic group; R5 = structure containing  $\geq 2$  carbon atoms; m = 3-100,000 integer; n, o = 0-2 integer; p, q = 0-4 integer (p + q > 0); Z1 =  $\geq 1$  structure selected from NR6R7, N:CR8R9, NR10C(:O)R11, or NHCOR12OH; Z2 =  $\geq 1$  structure selected from NR6R7, N:CR8R9, NR10C(:O)R11, NHCOR12OH, vinyl, ethenyl, mercapto, or hydroxy group; R6, R7, R8, R9, R10 = H or C1-8 organic group; R11, R12 = C1-8 organic group; and

a,

$b = \geq 1$  integer. Thus, 4,4'-diaminodiphenyl ether 19, 1,3-bis(3-aminopropyl)tetramethyldisiloxane 1.2, pyromellitic anhydride 10.8, and 3,3',4,4'-benzophenonetetracarboxylic dianhydride 15 g were reacted at room temperature for 6 h to give a polyamic acid varnish, 3% 3-aminopropionitrile was added therein, applied on a copper-sputtered silicon wafer, a titanium-sputtered silicon wafer, and a gold-sputtered silicon wafer, and cured to give test pieces showing good adhesion between metal materials and a heat-resistant resin.

IT 223255-30-9P

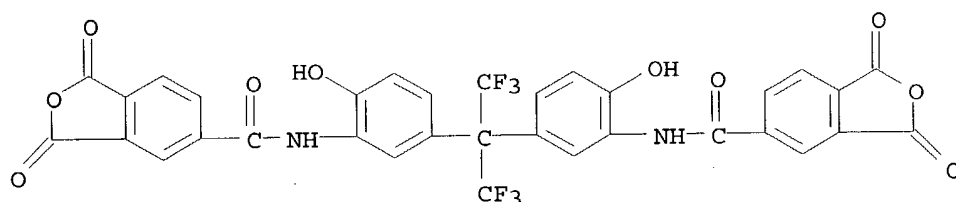
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomer; preparation of heat-resistant resin precursor

comps. for semiconductor devices)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IT 652968-59-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(optionally precursor; preparation of heat-resistant resin precursor comps. for semiconductor devices)

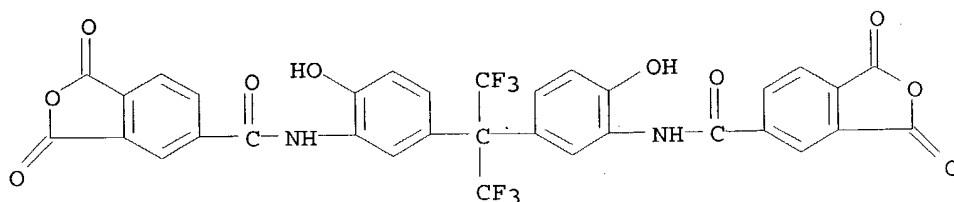
RN 652968-59-7 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 3-aminophenol and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

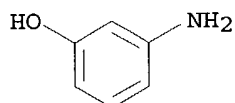
CMF C33 H16 F6 N2 O10





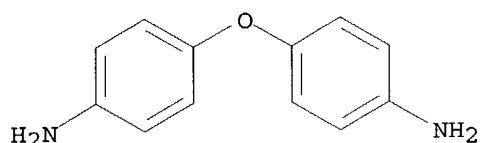
CM 2

CRN 591-27-5  
CMF C6 H7 N O



CM 3

CRN 101-80-4  
CMF C12 H12 N2 O



IT 261373-47-1P

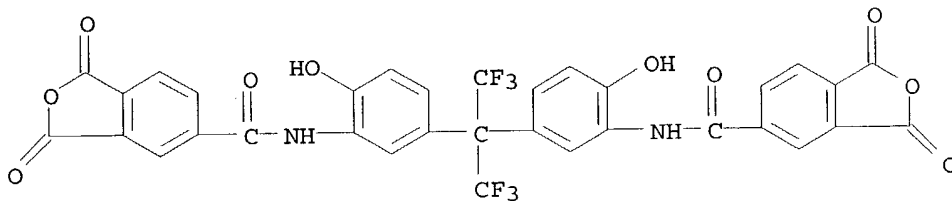
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(optionally precursor; preparation of heat-resistant resin  
precursor compns. for semiconductor devices)

RN 261373-47-1 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

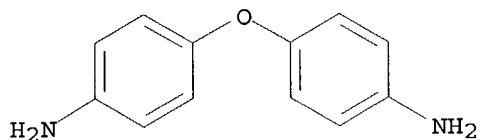
CM 1

CRN 223255-30-9  
CMF C33 H16 F6 N2 O10



CM 2

CRN 101-80-4  
CMF C12 H12 N2 O



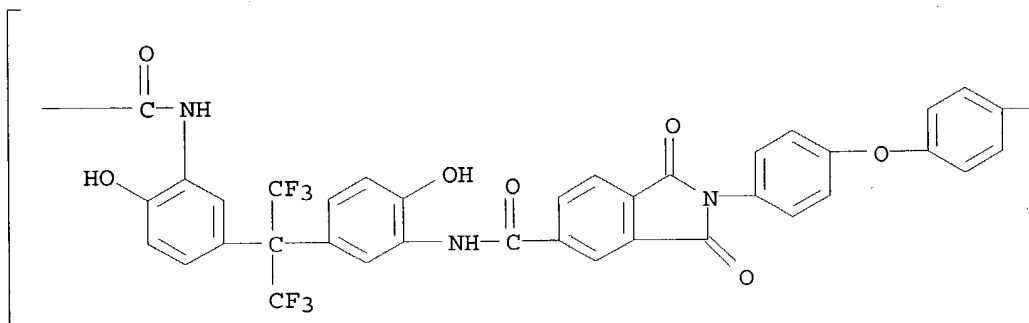
IT 231963-06-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of heat-resistant resin precursor compns. for semiconductor devices)

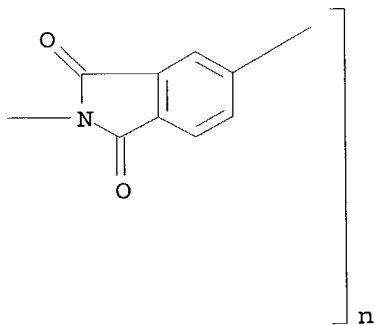
RN 231963-06-7 CAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C08L079-08

ICS C08G073-12; C08K005-00; G03F007-022; G03F007-037; H01L021-312

CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 74, 76

ST heat **resistant** resin precursor **compn**  
**semiconductor** device; polyether polyketone polysiloxane polyimide  
aminopropionitrile compn

IT Polyimides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(acrylic-polyether-; preparation of heat-**resistant** resin precursor  
**compns.** for **semiconductor** devices)

IT Polyethers, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(acrylic-polyimide-; preparation of heat-**resistant** resin precursor  
**compns.** for **semiconductor** devices)

IT Polyamic acids  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(fluorine-containing, precursors; preparation of heat-**resistant** resin  
precursor **compns.** for **semiconductor** devices)

IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(fluorine-containing; preparation of heat-**resistant** resin precursor  
**compns.** for **semiconductor** devices)

IT Catalysts  
(photochem., photoacid; preparation of heat-**resistant** resin  
precursor **compns.** for **semiconductor** devices)

IT Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(polyamic acid-, aromatic, esters, acrylic-, precursors; preparation of  
heat-  
**resistant** resin precursor **compns.** for  
**semiconductor** devices)

IT Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(polyamic acid-, aromatic, fluorine-containing, precursors; preparation of  
heat-  
**resistant** resin precursor **compns.** for  
**semiconductor** devices)

IT Fluoropolymers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(polyamic acid-, precursors; preparation of heat-**resistant** resin  
precursor **compns.** for **semiconductor** devices)

IT Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(polyamic acid-polyamide-, aromatic, fluorine-containing, precursors;  
preparation  
of heat-**resistant** resin precursor **compns.** for  
**semiconductor** devices)

- IT Polyamides, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamic acid-polyether-, aromatic, fluorine-containing, precursors;  
 preparation  
     of heat-resistant resin precursor compns. for  
     semiconductor devices)
- IT Fluoropolymers, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamic acid-polyether-, aromatic, precursors; preparation of heat-  
     resistant resin precursor compns. for  
     semiconductor devices)
- IT Polysiloxanes, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamic acid-polyether-polyketone-, aromatic, precursors; preparation of  
     heat-resistant resin precursor compns. for  
     semiconductor devices)
- IT Polyketones  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamic acid-polyether-siloxane-, aromatic, precursors; preparation of  
 heat-  
     resistant resin precursor compns. for  
     semiconductor devices)
- IT Polyethers, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamic acid-polyketone-siloxane-, aromatic, precursors; preparation of  
 heat-  
     resistant resin precursor compns. for  
     semiconductor devices)
- IT Polyamic acids  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polyamide-polyether-, aromatic, fluorine-containing, precursors;  
 preparation of  
     heat-resistant resin precursor compns. for  
     semiconductor devices)
- IT Polyethers, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
 (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-, fluorine-containing; preparation of heat-  
     resistant resin precursor compns. for  
     semiconductor devices)
- IT Fluoropolymers, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
 (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-; preparation of heat-resistant resin  
     precursor compns. for semiconductor devices)
- IT Polyimides, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
 (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-polyether-, fluorine-containing; preparation of heat-

**resistant resin precursor compns. for semiconductor devices)**

IT Fluoropolymers, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole-polyether-**; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT Fluoropolymers, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole-polyether-polyimide-**; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT Polyethers, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole-polyimide-**, fluorine-containing; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT Polyamic acids

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyether-, aromatic, esters, acrylic-, precursors; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT Polyamic acids

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyether-, aromatic, fluorine-containing, precursors; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-, fluorine-containing; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-polyimide-, fluorine-containing; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT Polysiloxanes, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(polyether-polyimide-polyketone-, aromatic; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

IT Polyketones

RL: IMF (Industrial manufacture); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(polyether-polyimide-siloxane-, aromatic; preparation of heat-**resistant resin precursor compns. for semiconductor devices)**)

- IT Polyamic acids  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyether-polyketone-siloxane-, aromatic, precursors; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT Polyimides, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (polyether-polyketone-siloxane-, aromatic; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT Polyethers, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (polyimide-polyketone-siloxane-, aromatic; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT Polyamides, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (precursors; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT Electric insulators  
 Heat-resistant materials  
 Negative photoresists  
 Semiconductor devices  
 (preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT Metals, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (substrates; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT 106-50-3, p-Phenylenediamine, uses 123-30-8, 4-Aminophenol 151-18-8, 3-Aminopropionitrile 871-78-3, N,N'-Diacetylenediamine  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (adhesion improver; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT 7440-21-3, Silicon, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (metal-sputtered, substrate; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT 129708-71-0P 220426-92-6P 223255-30-9P 251650-61-0P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (monomer; preparation of heat-resistant resin precursor compns. for semiconductor devices)
- IT 84329-58-8P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-pyromellitic anhydride copolymer 261373-55-1P 347147-75-5P 389085-32-9P, 3,5-Diaminobenzoic acid-4,4'-diaminodiphenyl ether-3,3',4,4'-diphenyl ether tetracarboxylic dianhydride dibutyl ester dichloride copolymer 652968-56-4P 652968-57-5P 652968-58-6P 652968-59-7P 656223-50-6P, 4,4'-Diaminodiphenyl ether-ethylene glycol

dimethacrylate-pyromellitic anhydride 2-methacryloylethyl  
 ester-trimethylolpropane triacrylate copolymer 656223-51-7P,  
 3,5-Diaminobenzoic acid-4,4'-diaminodiphenyl ether-ethylene glycol  
 dimethacrylate-pyromellitic anhydride 2-methacryloylethyl  
 ester-trimethylolpropane triacrylate copolymer

RL: IMF (Industrial manufacture); POF (Polymer in formulation); RCT  
 (Reactant); TEM (Technical or engineered material use); PREP  
 (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (optionally precursor; preparation of heat-resistant resin  
 precursor compns. for semiconductor devices)

IT 261373-47-1P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
 (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (optionally precursor; preparation of heat-resistant resin  
 precursor compns. for semiconductor devices)

IT 3770-97-6D, Naphthoquinone-1,2-diazido-5-sulfonyl chloride, reaction  
 products with tetrahydroxybenzophenone 31127-54-5D, 2,3,4,4'-  
 Tetrahydroxybenzophenone, reaction products with  
 naphthoquinonediazidosulfonyl chloride 85342-62-7, NAI 105 119666-27-2  
 172491-61-1, 4NT 300

RL: CAT (Catalyst use); USES (Uses)  
 (photoacid generator; preparation of heat-resistant resin  
 precursor compns. for semiconductor devices)

IT 113339-21-2P 261503-24-6P 645385-91-7P 656798-61-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (precursor; preparation of heat-resistant resin precursor  
 compns. for semiconductor devices)

IT 5538-93-2P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP  
 (Preparation); USES (Uses)  
 (preparation of heat-resistant resin precursor compns.  
 for semiconductor devices)

IT 112480-78-1P 133515-46-5P 231963-06-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
 (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (preparation of heat-resistant resin precursor compns.  
 for semiconductor devices)

IT 24424-99-5, tert-Butyl dicarbonate

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (protecting group for hydroxy of monomer; preparation of heat-  
 resistant resin precursor compns. for  
 semiconductor devices)

IT 108-24-7, Acetic anhydride 929-59-9, 1, 2-Bis(2-aminoethoxy)ethane

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant in adhesion improver preparation; preparation of heat-resistant  
 resin precursor compns. for semiconductor devices)

IT 71-36-3, n-Butyl alcohol, reactions 121-90-4, 3-Nitrobenzoyl chloride  
 1204-28-0, Trimellitic anhydride chloride 1333-74-0, Hydrogen, reactions  
 1823-59-2, 3,3',4,4'-Diphenyl ether tetracarboxylic dianhydride  
 7719-09-7, Thionyl chloride 83558-87-6, 2,2-Bis(3-amino-4-  
 hydroxyphenyl)hexafluoropropane

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant in monomer preparation; preparation of heat-resistant resin  
 precursor compns. for semiconductor devices)

IT 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(silicon wafer sputtered with, substrate; preparation of heat-resistant resin precursor **compns.** for **semiconductor** devices)

IT 11116-16-8, Titanium nitride

RL: TEM (Technical or engineered material use); USES (Uses)  
(substrate; preparation of heat-resistant resin precursor **compns.** for **semiconductor** devices)

L154 ANSWER 5 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:117296 CAPLUS

DOCUMENT NUMBER: 140:172275

TITLE: Photosensitive heat resistant resin precursor **composition**

INVENTOR(S): Fujita, Yoji; Suwa, Mitsuhiro; Tomikawa, Masao

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Eur. Pat. Appl., 31 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1388758	A1	20040211	EP 2003-254849	20030804
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2004053156	A1	20040318	US 2003-623680	20030722
CN 1480491	A	20040310	CN 2003-152545	20030801
JP 2004126547	A2	20040422	JP 2003-205652	20030804

PRIORITY APPLN. INFO.: JP 2002-227178 A 20020805

OTHER SOURCE(S): MARPAT 140:172275

AB A photosensitive resin precursor composition exhibiting an excellent film thickness uniformity contains: a heat resistant resin precursor polymer; a radiation sensitive compound; and a solvent expressed by  $R1C(=O)-(R2R3C)1-C(OH)R5R4$  ( $R1=$  C1-3 alkyl group;  $R2-5 =$  H, C1-3 alkyl group;  $1 = 0-3$ ). The present invention provides a photosensitive resin precursor composition which is suitably used for a surface protection layer and insulating interlayer of a **semiconductor** element, and insulating layer of an organic electroluminescent device.

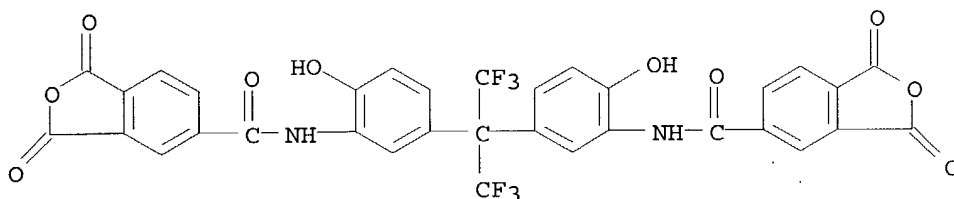
IT 223255-30-9P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of photosensitive heat resistant resin precursor **composition**)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)





- IC ICM G03F007-004  
ICS G03F007-023
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 35, 38
- ST photosensitive heat **resistant** resin precursor **compn** solvent
- IT Electroluminescent devices  
Light-sensitive materials  
(photosensitive heat **resistant** resin precursor **compn** .)
- IT 99-57-0, 2-Amino-4-nitrophenol 99-63-8, Isophthaloyl chloride  
122-04-3, 4-Nitrobenzoyl chloride 2081-08-5, Bisphenol E 3770-97-6  
3867-55-8, Trimellitoyl chloride 36451-09-9 51728-14-4, TrisP-SA  
83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
110726-28-8, TrisP-PA 110726-34-6, TrisOCR-PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of photosensitive heat **resistant** resin precursor **composition**)
- IT 25596-69-4P 46907-17-9P 129197-38-2P 223255-30-9P  
654646-40-9P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of photosensitive heat **resistant** resin precursor **composition**)
- IT 96-48-0,  $\gamma$ -Butyrolactone 115-22-0, 3-Hydroxy-3-methyl-2-butanone  
116-09-6, Acetol 123-42-2, Diacetone alcohol 127-19-5 823-19-8,  
3-Hydroxycyclohexanone 872-50-4, N-Methyl-2-pyrrolidone, uses  
26831-63-0  
RL: TEM (Technical or engineered material use); USES (Uses)  
(solvent; photosensitive heat **resistant** resin precursor **composition**)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 6 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:32658 CAPLUS

DOCUMENT NUMBER: 140:101757

TITLE: Polymer **compositions** with excellent **resistance** to oxidative decomposition and organic electroluminescent elements using them as insulating layers

INVENTOR(S): Arai, Nana; Tomikawa, Masao; Okuda, Ryoji

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 32 pp.

CODEN: JKXXAF

DOCUMENT TYPE:

Patent

LANGUAGE:

Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004010696	A2	20040115	JP 2002-163998	20020605

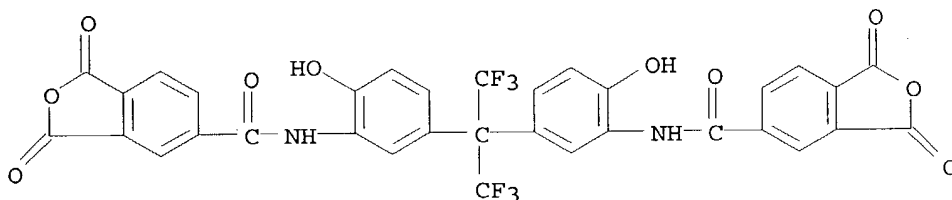
PRIORITY APPLN. INFO.: JP 2002-163998 20020605

AB The compns., preferably containing curing agents with groups CH<sub>2</sub>OR (R = H, C1-20 alkyl, C4-20 alicyclic group, RbCO; Rb = C1-20 alkyl), give films with thickness 0.05-20.0 μm showing thickness reduction rate during UV ozone treatment ≤0.015 μm/min or thickness reduction rate during O plasma treatment ≤0.005 μm/min.

IT **223255-30-9DP**, reaction products with diamines  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM C08L079-08  
 ICS C08K005-13; H05B033-14; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 38, 76

ST elec insulator polymer oxidative decompn resistance; UV ozone resistance  
 polyimide thickness retention; electroluminescent device dielec film  
 plasma treatment

IT Aminoplasts  
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)  
 (Nikalac MX 290, curing agent; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Acrylic polymers, uses  
 Silsesquioxanes  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (cured; polymer **compns.** with good oxidative decomposition

**resistance** for dielec. films for organic electroluminescent elements)

IT Phenolic resins, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Phenolic resins, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (novolak, cresol-based, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Epoxy resins, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (phenolic; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Polysiloxanes, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polyether-polyimide-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Fluoropolymers, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polyether-polyimide-polysiloxane-, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Polyimides, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polyether-polysiloxane-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Polysiloxanes, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polyimide-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Polyethers, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polyimide-polysiloxane-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)

IT Polyimides, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polysiloxane-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for

- dielec. films for organic electroluminescent elements)
- IT Polyethers, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polybenzoxazole-, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT **Polybenzoxazoles**  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT Polyamides, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polyimide-polysiloxane-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT Polyamides, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyimide-polysiloxane-, fluorine-containing, cured; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT Dielectric films  
 Electroluminescent devices  
 (polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT 91-04-3, 2,6-Bis(hydroxymethyl)-p-cresol  
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)  
 (DML-PC, curing agent; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT 9011-05-6, Nikalac MX 270  
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)  
 (Nikalac MX 290, curing agent; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT 2768-02-7, KBM 1003  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (coupling agent; polymer **compns.** with good oxidative decomposition **resistance** for dielec. films for organic electroluminescent elements)
- IT 101-80-4DP, 4,4'-Diaminodiphenyl ether, reaction products with acid anhydride and diamine 2420-87-3DP, 3,3',4,4'-Biphenyltetracarboxylic dianhydride, reaction products with diamines 25035-81-8P, Methacrylic acid-methyl methacrylate-styrene copolymer 27029-76-1P, m-Cresol-p-cresol-formaldehyde copolymer 129197-38-2DP, reaction products with biphenyltetracarboxylic dianhydride and diamine 162816-07-1P 223255-30-9DP, reaction products with diamines

347147-75-5P 645385-91-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(cured; polymer **compns.** with good oxidative decomposition  
**resistance** for dielec. films for organic electroluminescent  
elements)

IT 22247-58-1, 2,2'-Methylenebis[6-(hydroxymethyl)-4-methylphenol]  
32449-09-5, 2,6-Bismethoxymethyl-p-cresol 109129-38-6 421546-91-0  
643090-86-2, Nikalac MX 750LM

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT  
(Reactant or reagent); USES (Uses)

(curing agent; polymer **compns.** with good oxidative decomposition  
**resistance** for dielec. films for organic electroluminescent  
elements)

IT 122-04-3, 4-Nitrobenzoyl chloride 3867-55-8, Trimellitic chloride  
83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
RL: RCT (Reactant); RACT (Reactant or reagent)

(for monomer preparation; polymer **compns.** with good oxidative  
decomposition **resistance** for dielec. films for organic  
electroluminescent elements)

IT 3584-23-4D, TAZ 104, esters 20546-03-6D, 1,2-Naphthoquinone-2-diazide-5-  
sulfonic acid, esters

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; polymer **compns.** with good oxidative  
decomposition **resistance** for dielec. films for organic  
electroluminescent elements)

IT 641629-22-3P 641629-23-4P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)

(polymer **compns.** with good oxidative decomposition  
**resistance** for dielec. films for organic electroluminescent  
elements)

L154 ANSWER 7 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:951321 CAPLUS

DOCUMENT NUMBER: 140:21276

TITLE: Photosensitive resin **composition** and method  
for preparing heat-**resistant** resin film

INVENTOR(S): Miyoshi, Kazuto; Okuda, Ryoji; Tomikawa, Masao

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: PCT Int. Appl., 62 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003100522	A1	20031204	WO 2003-JP6654	20030528
W: CN, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, ,				
IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
JP 2004054254	A2	20040219	JP 2003-150454	20030528
PRIORITY APPLN. INFO.:			JP 2002-155460	A 20020529

AB The invention relates to a photosensitive resin composition which comprises (a) a resin having a specific structure, (b) a photosensitive agent and (c) an organic solvent having a b.p. under atmospheric pressure of 100°C to 140 °C, and contains the (c) component in an amount of 50 to 100 weight % relative to the total amount of the organic solvent; and a method for a heat-resistant resin film comprising using the resin composition The resin

composition

is advantageous in that it is less prone to causing defects such as transfer marks or furrows. The resin composition is suitable for a dielec. layer of organic EL display panels, a surface protecting layer and interlayer-insulating layer of **semiconductor** devices, etc.

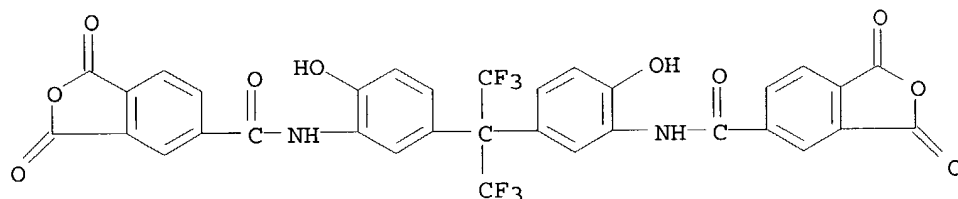
IT 223255-30-9P 236095-20-8DP, maleic anhydride terminated

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(photosensitive resin **composition** and method for preparing heat-resistant resin film)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



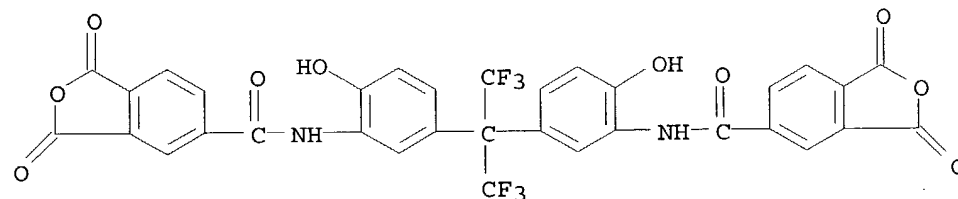
RN 236095-20-8 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

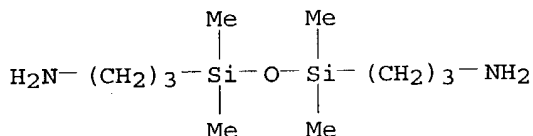
CMF C33 H16 F6 N2 O10



CM 2

CRN 2469-55-8

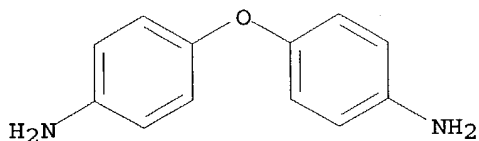
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



IT 630402-12-9P 630402-13-0P 630402-15-2P

630402-20-9DP, 3-aminophenol terminated

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(photosensitive resin **composition** and method for preparing heat-resistant resin film)

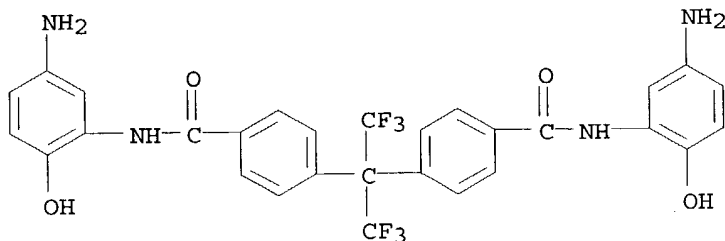
RN 630402-12-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[N-(5-amino-2-hydroxyphenyl)benzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 497061-36-6

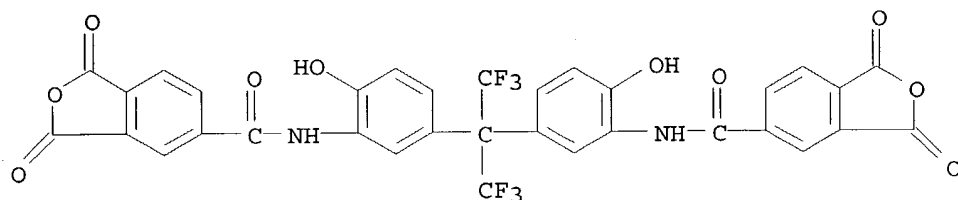
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CM 2

CRN 223255-30-9

CMF C33 H16 F6 N2 O10



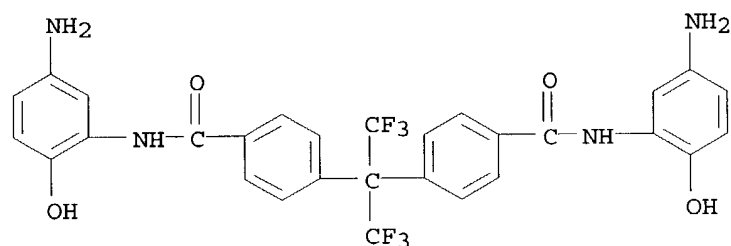
RN 630402-13-0 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4-aminophenol and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[N-(5-amino-2-hydroxyphenyl)benzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 497061-36-6

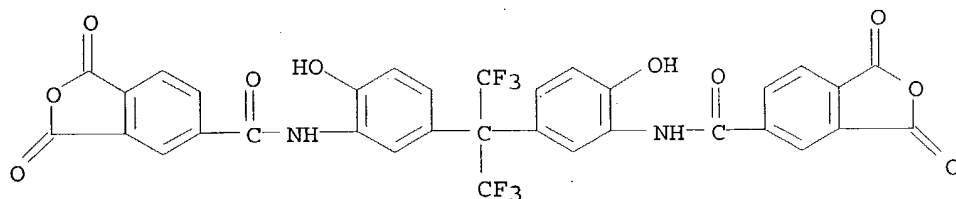
CMF C29 H22 F6 N4 O4



CM 2

CRN 223255-30-9

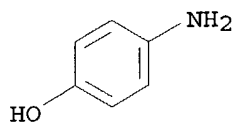
CMF C33 H16 F6 N2 O10





CM 3

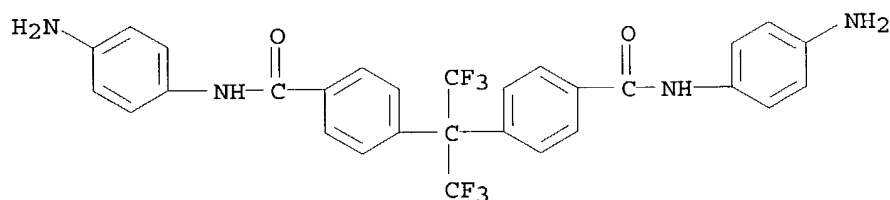
CRN 123-30-8  
CMF C6 H7 N O



RN 630402-15-2 CAPLUS  
CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 3-amino-N-(5-amino-2-hydroxyphenyl)benzamide and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[N-(4-aminophenyl)benzamide] (9CI) (CA INDEX NAME)

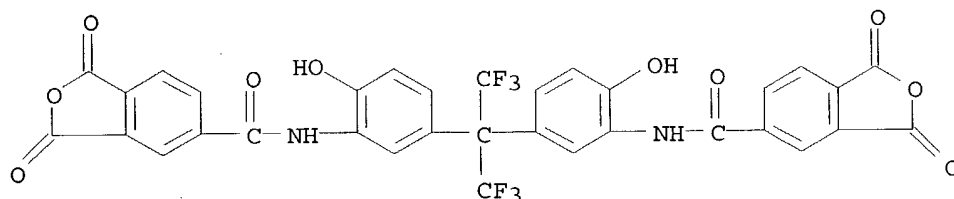
CM 1

CRN 630402-14-1  
CMF C29 H22 F6 N4 O2



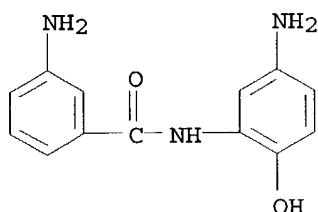
CM 2

CRN 223255-30-9  
CMF C33 H16 F6 N2 O10



CM 3

CRN 27431-43-2  
CMF C13 H13 N3 O2



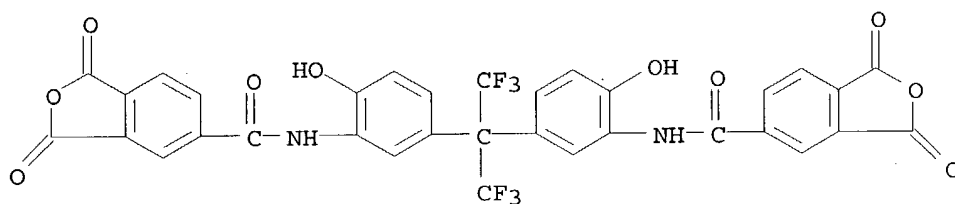
RN 630402-20-9 CAPLUS

CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-oxybis[benzenamine] and N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxamide] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

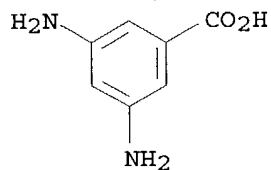
CMF C33 H16 F6 N2 O10



CM 2

CRN 535-87-5

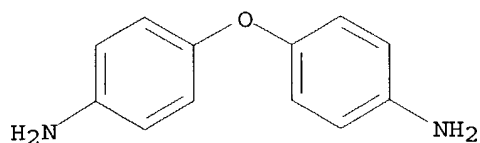
CMF C7 H8 N2 O2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



- IC ICM G03F007-037  
ICS G03F007-022; H05B033-10; H05B033-14
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 35, 76
- ST photosensitive resin **compn** heat **resistant** film
- IT Heat-**resistant** materials  
(films; photosensitive resin **composition** and method for preparing heat-**resistant** resin film)
- IT Films  
(heat-**resistant**; photosensitive resin **composition** and method for preparing heat-**resistant** resin film)
- IT Light-sensitive materials  
Optical imaging devices  
Positive **photoresists**  
Semiconductor device fabrication  
(photosensitive resin **composition** and method for preparing heat-**resistant** resin film)
- IT Polyamic acids  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(photosensitive resin **composition** and method for preparing heat-**resistant** resin film)
- IT 96-48-0,  $\gamma$ -Butyrolactone 97-64-3, Ethyl lactate 107-87-9, Methyl propyl ketone 110-80-5, Ethylene glycol monoethyl ether 123-86-4, Butyl acetate 127-19-5 694-85-9, N-Methyl-2-pyridone 872-50-4, N-Methyl-2-pyrrolidone, uses 1320-67-8, Propylene glycol monomethyl ether 52125-53-8, Propyleneglycol monoethyl ether  
RL: NUU (Other use, unclassified); USES (Uses)  
(photosensitive resin **composition** and method for preparing heat-**resistant** resin film)
- IT 71-36-3, Butylalcohol, reactions 99-57-0, 2-Amino-4-nitrophenol 1102-92-7, 2,2-Bis[4-(chlorocarbonyl)phenyl]hexafluoropropane 1823-59-2, 3,3',4,4'-Diphenyl ether tetracarboxylic acid dianhydride 3867-55-8, Trimellitic acid chloride 7719-09-7, Thionyl chloride 18708-46-8, Benzoic acid, 4-(chlorocarbonyl)- 71849-58-6, Hydroxybenzotriazole 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(photosensitive resin **composition** and method for preparing heat-**resistant** resin film)
- IT 122-04-3P, 4-Nitrobenzoyl chloride 27431-43-2P 152431-91-9P 223255-30-9P 236095-20-8DP, maleic anhydride terminated 288396-16-7P 431041-52-0P 497061-36-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(photosensitive resin **composition** and method for preparing heat-**resistant** resin film)

IT 80-05-7DP, Bisphenol A, 5-naphthoquinonediazidesulfonyl ester 99-89-8DP, 4-Isopropylphenol, 5-naphthoquinonediazidesulfonyl ester 3770-97-6DP, o-Naphthoquinonediazide-5-sulfonyl chloride, ester with aryl phenolderiv. 27955-94-8DP, TrisP-HAP, 5-naphthoquinonediazidesulfonyl ester 110726-28-8DP, Tris-PA (phenol), 5-naphthoquinonediazidesulfonyl ester **630402-12-9P 630402-13-0P 630402-15-2P** 630402-18-5DP, 3-aminophenol terminated 630402-18-5DP, 4-ethynylaniline-terminated 630402-19-6P **630402-20-9DP**, 3-aminophenol terminated 630402-21-0P  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (photosensitive resin **composition** and method for preparing heat-resistant resin film)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 8 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:794020 CAPLUS

DOCUMENT NUMBER: 139:314238

TITLE: Plastic optical waveguide material

INVENTOR(S): Fujiwara, Makoto; Otsuki, Tomohito; Miyao, Kenji

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 27 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

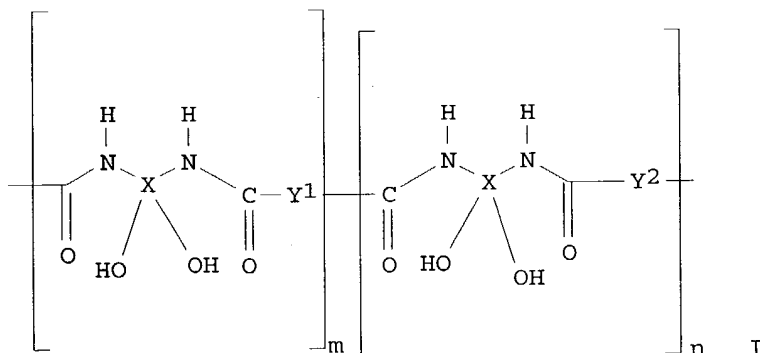
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003287634	A2	20031010	JP 2002-111274	20020412
PRIORITY APPLN. INFO.:			JP 2002-13468	A 20020122

GI



AB The invention relates to a plastic material, suited for use in making an optical waveguide, represented by I [X = tetravalent organic group; Y1 and Y2

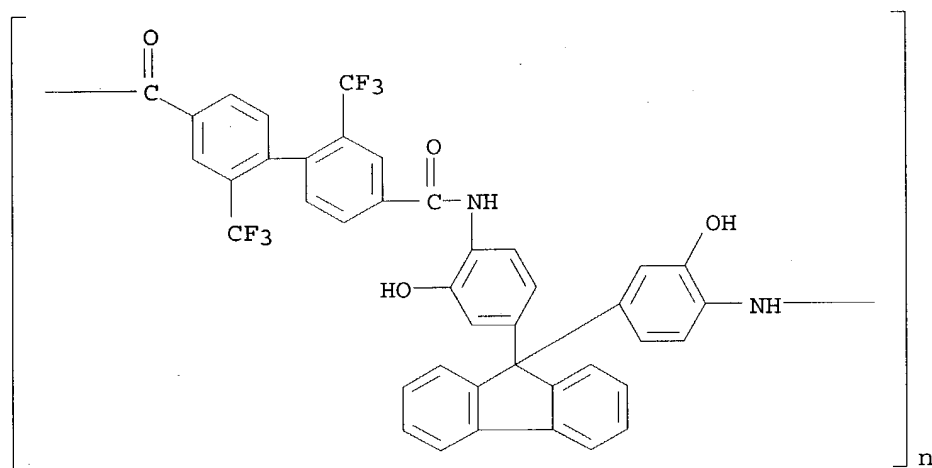
= divalent organic group dissimilar to each other;  $m > 0$ ,  $n \geq 0$ , and  $1000 \geq m + n \geq 2$ . The difference in the refractive index between the compds. represented by the structural repeating unit  $m$  and  $n$ , is  $\geq 3\%$ .

IT 612089-35-7P 612089-36-8P 612089-37-9P  
612089-39-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(plastic optical waveguiding material)

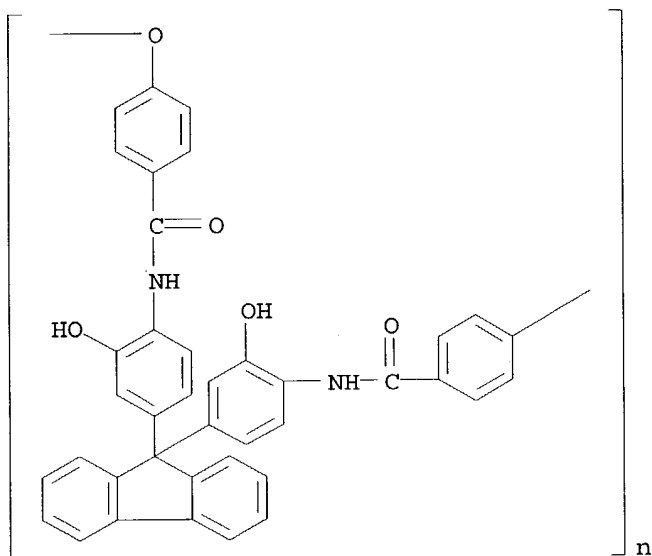
RN 612089-35-7 CAPLUS

CN Poly[imino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)iminocarbonyl[2,2'-bis(trifluoromethyl)[1,1'-biphenyl]-4,4'-diyl]carbonyl] (9CI) (CA INDEX NAME)



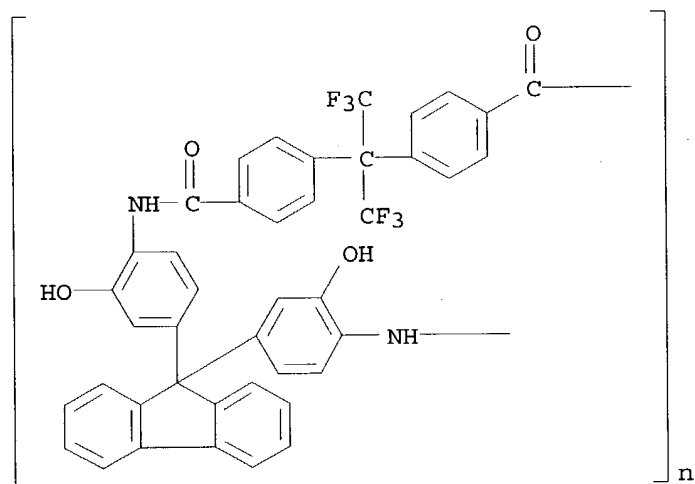
RN 612089-36-8 CAPLUS

CN Poly[oxy-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)



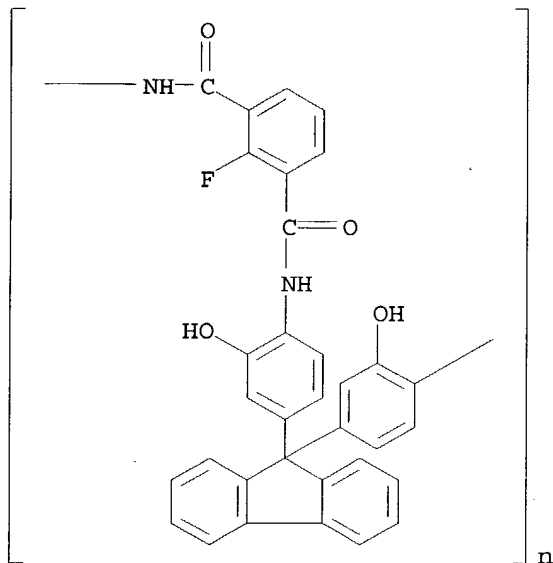
RN 612089-37-9 CAPLUS

CN Poly[imino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenylenecarbonyl] (9CI) (CA INDEX NAME)



RN 612089-39-1 CAPLUS

CN Poly[iminocarbonyl(2-fluoro-1,3-phenylene)carbonylimino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



IC ICM G02B006-12  
ICS C08G073-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 38

ST plastic optical waveguide material **polybenzoxazole** fluoropolymer

IT Optical materials  
Optical waveguides  
(plastic optical waveguiding material)

IT **Polybenzoxazoles**  
RL: DEV (Device component use); USES (Uses)  
(plastic optical waveguiding material)

IT Fluoropolymers, properties  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(plastic optical waveguiding material)

IT 612088-70-7P 612088-80-9P 612088-85-4P 612088-86-5P 612088-92-3P  
612088-98-9P 612089-00-6P 612089-46-0P 612089-62-0P 612089-76-6P  
612089-77-7P 612089-93-7P 612090-10-5P 612090-25-2P 612090-40-1P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(plastic optical waveguiding material)

IT 146167-67-1P 276870-16-7P 276870-17-8P 276873-48-4P 276873-49-5P  
438202-03-0P 438202-04-1P 438202-11-0P 438202-12-1P 438527-23-2P  
612088-68-3P 612088-69-4P 612088-71-8P 612088-72-9P 612088-73-0P  
612088-75-2P 612088-76-3P 612088-77-4P 612088-78-5P 612088-82-1P  
612088-83-2P 612088-84-3P 612088-87-6P 612088-88-7P 612088-89-8P  
612088-90-1P 612088-91-2P 612088-94-5P 612088-95-6P 612088-96-7P  
612088-97-8P 612088-99-0P 612089-01-7P 612089-02-8P 612089-03-9P  
612089-04-0P 612089-05-1P 612089-06-2P 612089-07-3P 612089-08-4P  
612089-09-5P 612089-47-1P 612089-48-2P 612089-49-3P 612089-51-7P  
612089-53-9P 612089-54-0P 612089-55-1P 612089-56-2P 612089-57-3P  
612089-58-4P 612089-59-5P 612089-60-8P 612089-61-9P 612089-63-1P  
612089-64-2P 612089-65-3P 612089-66-4P 612089-67-5P 612089-68-6P

612089-69-7P	612089-70-0P	612089-71-1P	612089-72-2P	612089-73-3P
612089-74-4P	612089-75-5P	612089-78-8P	612089-79-9P	612089-80-2P
612089-81-3P	612089-82-4P	612089-83-5P	612089-84-6P	612089-86-8P
612089-87-9P	612089-88-0P	612089-89-1P	612089-90-4P	612089-91-5P
612089-92-6P	612089-94-8P	612089-95-9P	612089-96-0P	612089-97-1P
612089-98-2P	612090-00-3P	612090-02-5P	612090-03-6P	612090-04-7P
612090-05-8P	612090-06-9P	612090-07-0P	612090-08-1P	612090-09-2P
612090-11-6P	612090-12-7P	612090-13-8P	612090-14-9P	612090-15-0P
612090-16-1P	612090-17-2P	612090-18-3P	612090-19-4P	612090-20-7P
612090-21-8P	612090-22-9P	612090-23-0P	612090-24-1P	612090-26-3P
612090-27-4P	612090-28-5P	612090-29-6P	612090-30-9P	612090-31-0P
612090-32-1P	612090-33-2P	612090-34-3P	612090-35-4P	612090-36-5P
612090-37-6P	612090-38-7P	612090-39-8P	612090-41-2P	612090-42-3P
612090-43-4P	612090-44-5P	612090-45-6P	612090-46-7P	612090-47-8P
612090-48-9P	612090-49-0P	612090-50-3P	612090-51-4P	612090-52-5P
612090-53-6P	612090-54-7P	613223-94-2P	616879-85-7P	616883-09-1P
616883-15-9P	616883-37-5P	616883-62-6P	616883-63-7P	616884-86-7P
616884-87-8P	616884-88-9P	616885-16-6P	616885-77-9P	616885-78-0P
616885-79-1P	616885-88-2P	616886-25-0P	616886-26-1P	616886-32-9P
616886-42-1P	616886-44-3P	616886-58-9P	616886-59-0P	616888-49-4P
616888-57-4P	616888-72-3P	616888-73-4P	616888-74-5P	616888-79-0P
616888-80-3P	616888-81-4P	619328-56-2P	619328-57-3P	619328-69-7P
619328-71-1P	619328-72-2P	619328-73-3P	619328-74-4P	619328-84-6P
619328-95-9P	619328-97-1P	619328-98-2P	619329-08-7P	619332-11-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(plastic optical waveguiding material)

IT	146186-11-0P	612089-10-8P	612089-12-0P	612089-13-1P	612089-14-2P
	612089-15-3P	612089-16-4P	612089-17-5P	612089-18-6P	612089-19-7P
	612089-20-0P	612089-21-1P	612089-22-2P	612089-23-3P	612089-24-4P
	612089-25-5P	612089-26-6P	612089-27-7P	612089-28-8P	612089-29-9P
	612089-30-2P	612089-31-3P	612089-32-4P	612089-33-5P	612089-34-6P
	612089-35-7P	612089-36-8P	612089-37-9P		
	612089-38-0P	612089-39-1P	612089-40-4P	612089-41-5P	
	612089-42-6P	612089-43-7P	612089-44-8P	612089-45-9P	

RL: SPN (Synthetic preparation); PREP (Preparation)  
(plastic optical waveguiding material)

L154 ANSWER 9 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:750884 CAPLUS

DOCUMENT NUMBER: 139:278046

TITLE: Polyamide-based varnish compositions for  
**semiconductor** device insulating microporous  
films

INVENTOR(S): Oki, Hiromi; Enoki, Naoshi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 27 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003268233	A2	20030925	JP 2002-72684	20020315



PRIORITY APPLN. INFO.:

JP 2002-72684

20020315

AB The compns. contain a copolymer (C) prepared by reacting a polyamide (A) with functional groups including carboxyl, amino, or hydroxyl, group with a reactive oligomer (B), a polyamide (D) and an oligomer (E). Thus, reacting 10 g styrene with 0.044 g ethylene oxide, then with 2.63 g 4-nitrobenzoic chloride, and reducing (preparation given) gave an styrene oligomer 4-aminobenzoate derivative, 38.4 g of which was reacted with a copolymer of 9,9-bis[(4-amino-3-hydroxy)phenyl]fluorene and 5-ethynylisophthalic dichloride to give a C, 8.0 g of which was then mixed with 2.0 g a copolymer of 9,9-bis[(4-amino-3-hydroxy)phenyl]fluorene and isophthalic dichloride and 6.4 g B to give a title composition showing claimed properties after coated on silicon wafers.

IT 488838-66-0P 604812-46-6DP, reaction product with 4-aminobenzoated styrene oligomer 604812-48-8P 604812-59-1P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (in polyamide-based varnish compns. for semiconductor device insulating microporous films)

RN 488838-66-0 CAPLUS

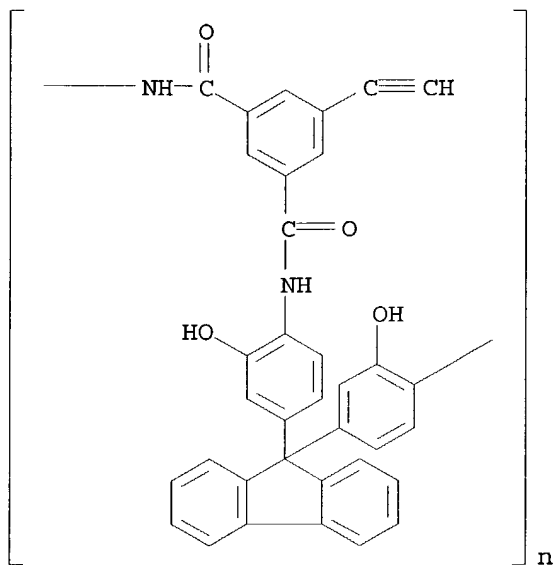
CN Poly[oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

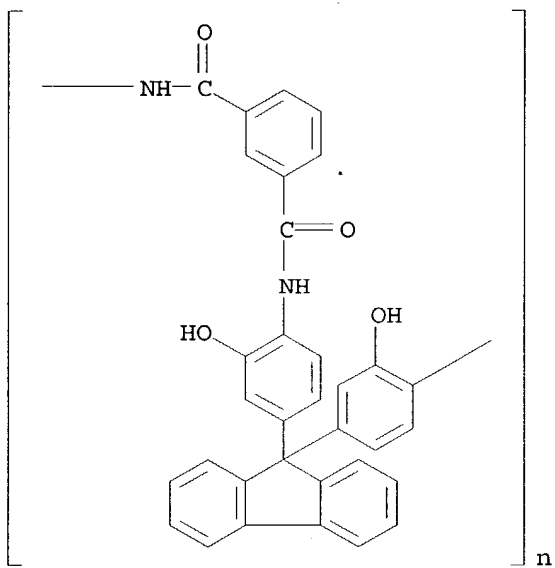
RN 604812-46-6 CAPLUS

CN Poly[iminocarbonyl(5-ethynyl-1,3-phenylene)carbonylimino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



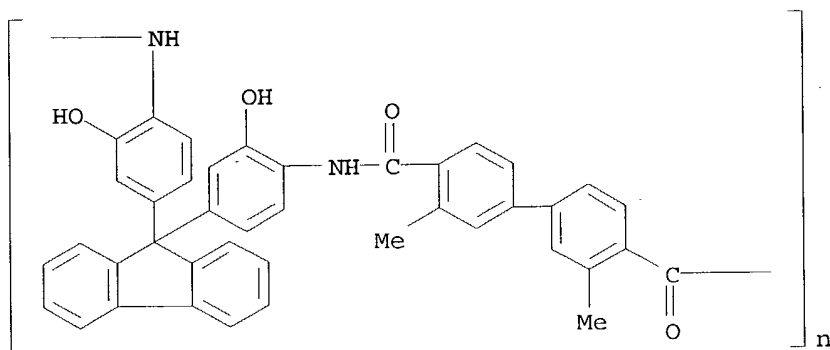
RN 604812-48-8 CAPLUS

CN Poly[iminocarbonyl-1,3-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



RN 604812-59-1 CAPLUS

CN Poly[imino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)iminocarbonyl(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)carbonyl] (9CI) (CA INDEX NAME)



- IC ICM C08L077-06  
ICS C08G069-48; C08L101-02; H01L021-312
- CC 42-10 (Coatings, Inks, and Related Products)  
Section cross-reference(s): 76
- ST aminobenzoated styrene oligomer polyamide varnish compn insulating film;  
**semiconductor** device microporous insulating film polyamide varnish compn
- IT Electric insulators  
(coatings; polyamide-based reactive varnish compns. for **semiconductor** device insulating microporous films)
- IT Dielectric films  
(fabrication **semiconductor** device insulating microporous films from polyamide-based varnish compns.)
- IT Polyamides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(in polyamide-based reactive varnish compns. for **semiconductor** device insulating microporous films)
- IT Polyoxyalkylenes, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide-, reaction product with 4-aminobenzoate derivs. of styrene oligomers; in polyamide-based reactive varnish compns. for **semiconductor** device insulating microporous films)
- IT Varnishes  
(polyamide-based reactive varnish compns. for **semiconductor** device insulating microporous films)
- IT Polyamides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyoxyalkylene-, reaction product with 4-aminobenzoate derivs. of styrene oligomers; in polyamide-based reactive varnish compns. for **semiconductor** device insulating microporous films)
- IT Polyamides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(reaction products, with 4-aminobenzoate derivs. of styrene oligomers; in polyamide-based reactive varnish compns. for **semiconductor** device insulating microporous films)
- IT **Semiconductor** devices  
(using insulating microporous films from polyamide-based varnish

- compns.)
- IT 25267-79-2DP, Ethylene oxide-styrene copolymer, 4-aminobenzoate derivs., reaction product with reactive polyamides 112513-26-5P 113716-09-9P 359862-18-3P 393543-16-3DP, reaction product with 4-aminobenzoated styrene oligomer 404591-37-3DP, reaction product with 4-aminobenzoated styrene oligomer **488838-66-0P** 604812-45-5DP, reaction product with 4-aminobenzoated styrene oligomer **604812-46-6DP**, reaction product with 4-aminobenzoated styrene oligomer 604812-47-7P **604812-48-8P** 604812-49-9DP, reaction product with 4-aminobenzoated styrene oligomer 604812-50-2DP, reaction product with 4-aminobenzoated styrene oligomer 604812-51-3P 604812-52-4P 604812-53-5DP, reaction product with 4-aminobenzoated styrene oligomer 604812-54-6DP, reaction product with 4-aminobenzoated styrene oligomer 604812-55-7P 604812-56-8P 604812-57-9DP, reaction product with 4-aminobenzoated styrene oligomer 604812-58-0P **604812-59-1P** 604812-60-4DP, reaction product with 4-aminobenzoated styrene oligomer  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (in polyamide-based varnish compns. for **semiconductor** device insulating microporous films)
- IT 122-04-3DP, reaction product with ethylene oxide-styrene copolymer, hydrogenated 25267-79-2DP, Ethylene oxide-styrene copolymer, reaction product with 4-nitrobenzoic chloride, hydrogenated  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (oligomer; in polyamide-based varnish compns. for **semiconductor** device insulating microporous films)
- IT 7440-21-3, Silicon, miscellaneous  
 RL: MSC (Miscellaneous) (wafer; fabrication **semiconductor** device insulating microporous films from polyamide-based varnish compns.)

L154 ANSWER 10 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:693993 CAPLUS  
 DOCUMENT NUMBER: 139:237730  
 TITLE: Positive-working photosensitive resin compositions containing polyimide or polyoxazole precursors, pattern formation using them, and electronic devices having the pattern  
 INVENTOR(S): Minegishi, Tomonori  
 PATENT ASSIGNEE(S): Hitachi Chemical Du Pont Micro System Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003248314	A2	20030905	JP 2002-48025	20020225
PRIORITY APPLN. INFO.:			JP 2002-48025	20020225

AB The compns., which show high sensitivity and good resolution and provides a cured film with high mech. strength and heat resistance, contain (A) polyimide or polyoxazole precursors which contain (a) heat-polymerizable

functional groups at the terminals and (b) OR (R = acid-decomposable monovalent organic group to be converted into H atom) or CO<sub>2</sub>R attached to aromatic ring and (B) radiation-sensitive acid generators.

IT 593272-62-9P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working photoresist compns. containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

RN 593272-62-9 CAPLUS

CN Poly[oxy-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene) [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] (4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene],  $\alpha$ -[4-[[[5-[1-[3-[[3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenyl]- $\omega$ -[4-[[[5-[1-[3-[[3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenoxy]-, homopolymer (9CI) (CA INDEX NAME)

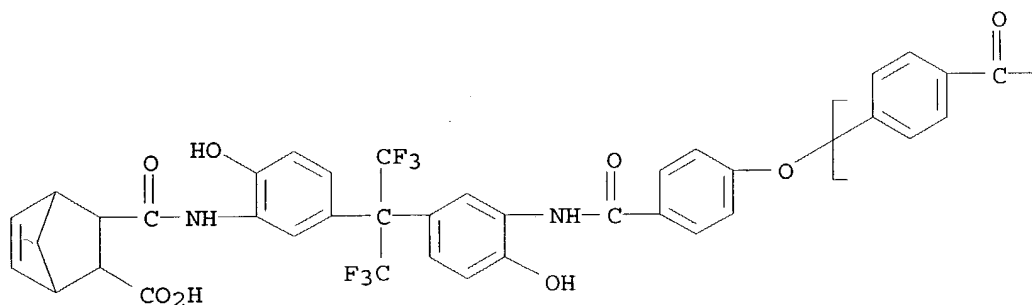
CM 1

CRN 361347-08-2

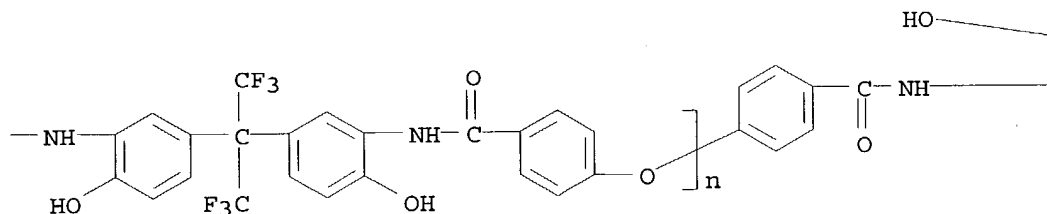
CMF (C29 H18 F6 N2 O5)n C62 H46 F12 N4 O13

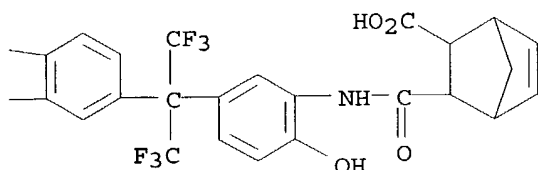
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PAGE 1-A



PAGE 1-B





- IC ICM G03F007-039  
ICS C08F299-02; C08G073-06; C08G073-10; G03F007-40; H01L021-027
- CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76
- ST pos photoresist heat polymerizable group terminated polyimide precursor;  
polyoxazole precursor heat polymerizable group terminated pos photoresist
- IT Polyethers, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide-, pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)
- IT Polyethers, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polybenzoxazole-, fluorine-containing; pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)
- IT Polyethers, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polybenzoxazole-, pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)
- IT Fluoropolymers, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polybenzoxazole-polyether-, pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)
- IT **Polybenzoxazoles**  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-, fluorine-containing; pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)
- IT Polyamides, preparation

**Polybenzoxazoles**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-; pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

IT Dielectric films

**Semiconductor devices**

(pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

IT Polyamic acids

**Polybenzoxazoles**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

IT 85342-63-8 405263-63-0

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

IT 593272-62-9P 593272-65-2P 593278-83-2P 593278-85-4P  
593278-87-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working **photoresist compns.** containing heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

L154 ANSWER 11 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:671172 CAPLUS

DOCUMENT NUMBER: 139:198446

TITLE: Porous **polybenzoxazole** films having extremely low permittivity, their preparation, and their use in **semiconductor** devices

INVENTOR(S): Oki, Hiromi; Enoki, Naoshi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003238724	A2	20030827	JP 2002-47120	20020222
PRIORITY APPLN. INFO.:			JP 2002-47120	20020222

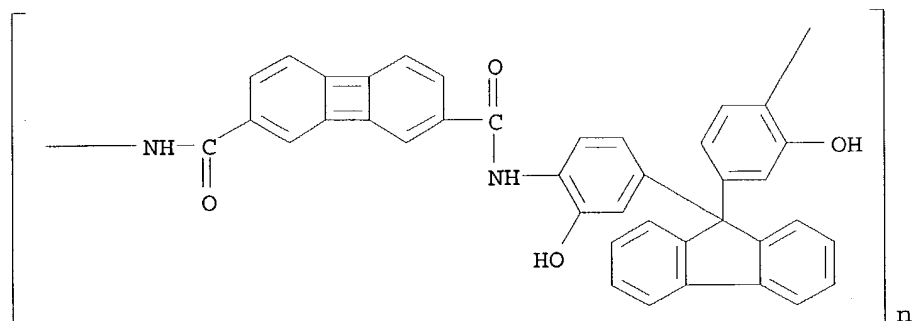
AB Compns. for forming dielec. films of interlayer dielects., protection films, solder resists, etc., contg. polyamides (A) involving repeating units represented by general formula  $[NHX(OH)2NHCOYCO]_n$  [ $X$  = divalent group selected from those derived from bisaminophenols such as 2,4-diaminoresorcinol, 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane, 9,9-bis[4-[(4-amino-3-hydroxy)phenoxy]phenyl]fluorene, etc.;  $Y = \geq 1$  of divalent group derived from dicarboxylic acids such as 3-ethynylphthalic acid, 2,2-bis(3-carboxy-4-ethynylphenyl)propane, 1,2-biphenylenedicarboxylic acid, 4,4'-tolandicarboxylic acid, isophthalic acid, 3,3'-sulfonylbisbenzoic acid, etc.] and oligomers (B), dissolved in 50-99.7% solvents (C), are formed into films by solvent casting method and exposed to vapors free from the solvents to remove the oligomers and to give fine pores in the films. Thus, polymerizing 37.7 g 9,9-bis[(4-amino-3-hydroxy)phenyl]fluorene with 27.7 g 4-ethynyl-2,6-naphthalenedicarboxylic acid dichloride in the presence of Et<sub>3</sub>N gave a polyamide with Mw 24,900 and polydispersity 2.2, 3.1 g of which was dissolved in NMP together with 1.3 g polyoxypropylene with Mn 7500, filtered to give a varnish, spin-coated on Al vapor-deposited Si wafers, dried at 120°, exposed to vapor MeOH, and heated at 300° and O concentration  $\leq 100$  ppm to give **polybenzoxazole** films. The films were then heated at 400° to decompose oligomer units to give porous **polybenzoxazole** films, vapor-deposited with AL and patterned to give electrodes. The films showed permittivity at 1 MHz 2.1, T<sub>g</sub> >450°, and contained  $\leq 5$ -nm fine pores dispersed uniformly.

IT 582294-76-6P 582294-78-8P, 9,9-Bis[(4-amino-3-hydroxy)phenyl]fluorene-4,4'-tolandicarboxylic acid dichloride copolymer, sru 582294-79-9P

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)

RN 582294-76-6 CAPLUS

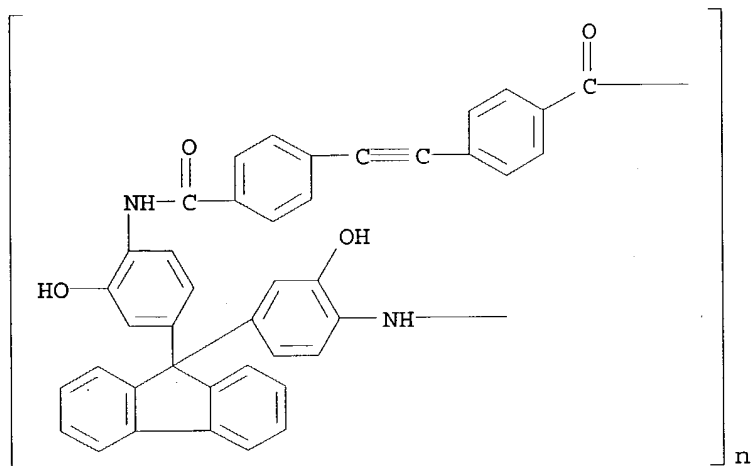
CN Poly[iminocarbonyl-2,7-biphenylenediylcarbonylimino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



RN 582294-78-8 CAPLUS

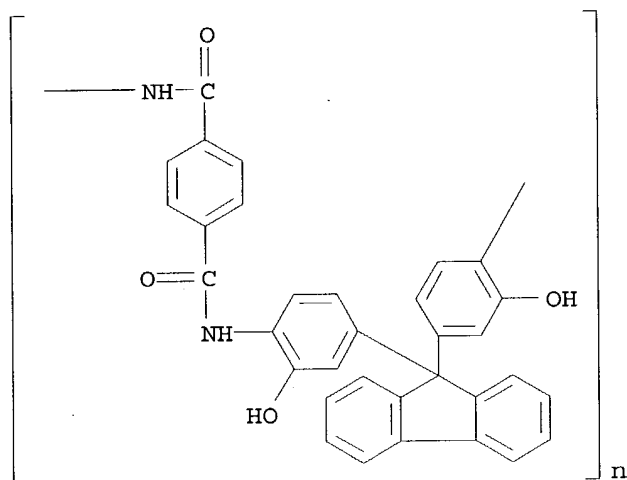
CN Poly[imino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylene-1,2-ethynediyl-1,4-phenylenecarbonyl] (9CI) (CA INDEX NAME)





RN 582294-79-9 CAPLUS

CN Poly[iminocarbonyl-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)-9H-fluoren-9-ylidene(3-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



IC ICM C08J009-04

ICS C08G069-32; H01L021-312; C08L077-06

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 74, 76

ST **polybenzoxazole** porous film low permittivity prepn; polyamide cyclization condensation **polybenzoxazole** prepn oligomer pyrolysis; polyoxyalkylene oligomer polyamide soln solvent casting; **semiconductor** device **polybenzoxazole** dielec film

IT Polyoxyalkylenes, uses

RL: NUU (Other use, unclassified); USES (Uses)

(oligomer; preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)

- IT Polyoxyalkylenes, processes  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process)  
(polyamide-, block, polyamide-oligomer copolymer; preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT Polyamides, processes  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process)  
(polyoxyalkylene-, block, polyamide-oligomer copolymer; preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT Dielectric films  
**Semiconductor** devices  
(preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT Polyoxyalkylenes, processes  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); PROC (Process)  
(preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT **Polybenzoxazoles**  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT 9046-10-0, Polypropylene glycol bis(2-aminopropyl ether)  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); PROC (Process)  
(oligomer; preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT 25322-69-4  
RL: NUU (Other use, unclassified); USES (Uses)  
(oligomer; preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)
- IT 582294-71-1P 582294-72-2P 582294-73-3P 582294-74-4P  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process)  
(polyamide-oligomer copolymer; preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by

solvent casting of polyamide-oligomer blends, followed with oligomer removal)

IT 582294-65-3P 582294-66-4P, 4,4'-Diamino-3,3'-dihydroxydiphenyl ether-5-phenylethynylisophthalic acid dichloride copolymer 582294-67-5P 582294-68-6P, 9,9-Bis[(4-amino-3-hydroxy)phenyl]fluorene-4,4'-tolandicarboxylic acid dichloride copolymer 582294-69-7P 582294-70-0P 582294-75-5P, 4,4'-Diamino-3,3'-dihydroxydiphenyl ether-5-phenylethynylisophthalic acid dichloride copolymer, sru 582294-76-6P 582294-78-8P, 9,9-Bis[(4-amino-3-hydroxy)phenyl]fluorene-4,4'-tolandicarboxylic acid dichloride copolymer, sru 582294-79-9P 583032-41-1P

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)

IT 9003-11-6, Ethylene oxide-propylene oxide copolymer

RL: NUU (Other use, unclassified); USES (Uses) (preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal)

IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses

RL: NUU (Other use, unclassified); USES (Uses) (preparation of low-k porous **polybenzoxazole** films for **semiconductor** devices by solvent casting of polyamide-oligomer blends, followed with oligomer removal by exposure to vapor of)

L154 ANSWER 12 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:671152 CAPLUS

DOCUMENT NUMBER: 139:189377

TITLE: Heat-resistant **polybenzoxazole** precursors with excellent moldability, **polybenzoxazoles**, and dielectric materials and **semiconductor** devices using them

INVENTOR(S): Ishida, Yuichi; Enoki, Naoshi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003238685	A2	20030827	JP 2002-40743	20020218

PRIORITY APPLN. INFO.: JP 2002-40743 20020218

AB The precursors, showing good solubility in organic solvents, have units [NHX(OH)2NHC:OYC:O]m[NHX(OH)2NHC:OZC:O]n [X = tetravalent aromatic group; Y = Q1OQ2C.tplbond.CX2; Q1 = benzenetriyl; Q2 = phenylene; X2 = H, aryl, aromatic group; Z = divalent aromatic group; m > 0; n ≥ 0; m + n = 2-1000; m/(m + n) = 0.5-1].

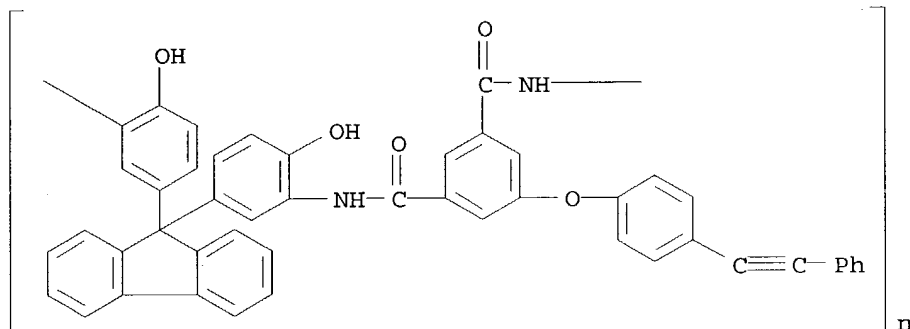
IT 581106-85-6P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinked; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

RN 581106-85-6 CAPLUS

CN Poly[iminocarbonyl[5-[4-(phenylethynyl)phenoxy]-1,3-phenylene]carbonylimino(6-hydroxy-1,3-phenylene)-9H-fluoren-9-ylidene(4-hydroxy-1,3-phenylene)] (9CI) (CA INDEX NAME)



IC ICM C08G073-22

ICS C08J005-18; H01L021-312; C08L079-08

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 38

ST heat resistance **polybenzoxazole** precursor interlayer dielec;

**polybenzoxazole** precursor ethynylphenoxy group crosslinking

**semiconductor**; **semiconductor** device

phenylethynylphenoxyisophthalic **polybenzoxazole** precursor soly

IT Polyamides, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(aromatic, fluorine- and hydroxy-containing, precursors; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Polyamides, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(aromatic, hydroxy-containing, precursors; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinked; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Heat-resistant materials

(films; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (fluorine-containing, crosslinked; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Dielectric films

**Semiconductor** devices

(heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Films

(heat-resistant; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Fluoropolymers, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyamide-, aromatic, hydroxy-containing, precursors; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Polyethers, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyamide-, hydroxy-containing, aromatic, precursors; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Fluoropolymers, properties

Polyethers, properties

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(**polybenzoxazole**-, crosslinked; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-, crosslinked; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT Polyamides, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyether-, hydroxy-containing, aromatic, precursors; heat-resistant **polybenzoxazole** precursors having ethynylphenoxy groups with good solubility in organic solvents for dielec. films for **semiconductor** devices)

IT

581106-78-7P, 3,3'-Diamino-4,4'-dihydroxybiphenyl-5-[4-(2-phenylethynyl)phenoxy]isophthalic dichloride copolymer 581106-79-8P  
 581106-80-1P 581106-81-2P 581106-82-3P 581106-83-4P 581106-84-5P  
**581106-85-6P** 581106-86-7P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinked; heat-resistant **polybenzoxazole** precursors  
having ethynylphenoxy groups with good solubility in organic solvents for  
dielec. films for **semiconductor** devices)

L154 ANSWER 13 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:298646 CAPLUS

DOCUMENT NUMBER: 138:328986

TITLE: High-temperature-resistant deep-UV-sensitive  
**photoresist composition** for forming  
dielectric or buffer layer in microelectronics

INVENTOR(S): Recai, Sezi

PATENT ASSIGNEE(S): Infineon Technologies AG, Germany

SOURCE: Ger. Offen., 16 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10145472	A1	20030417	DE 2001-10145472	20010914
US 2003087190	A1	20030508	US 2002-244280	20020916

PRIORITY APPLN. INFO.: DE 2001-10145472 A 20010914

AB The title **photoresist composition** comprises a  
poly-o-hydroxyamide with tert-butoxycarbonyl groups -COOCR3R4R5 (R3-5 =  
-H, -F, -(CH<sub>2</sub>)<sub>n</sub>CH<sub>3</sub>, -(CF<sub>2</sub>)<sub>n</sub>CF<sub>3</sub>; n = 0-10) as protective groups, a  
photoacid, and mixed solvents. The **photoresist composition**  
shows high photosensitivity to 248 nm light exposure compared to a  
conventional **photoresist composition** without the above  
protective groups. After the cyclization conversion of  
poly-o-hydroxyamide into **polybenzoxazole**, the new  
**photoresist composition** shows surprisingly a smaller dielec.  
constant than the conventional **photoresist composition**  
without the protective groups.

IT 512172-65-5P

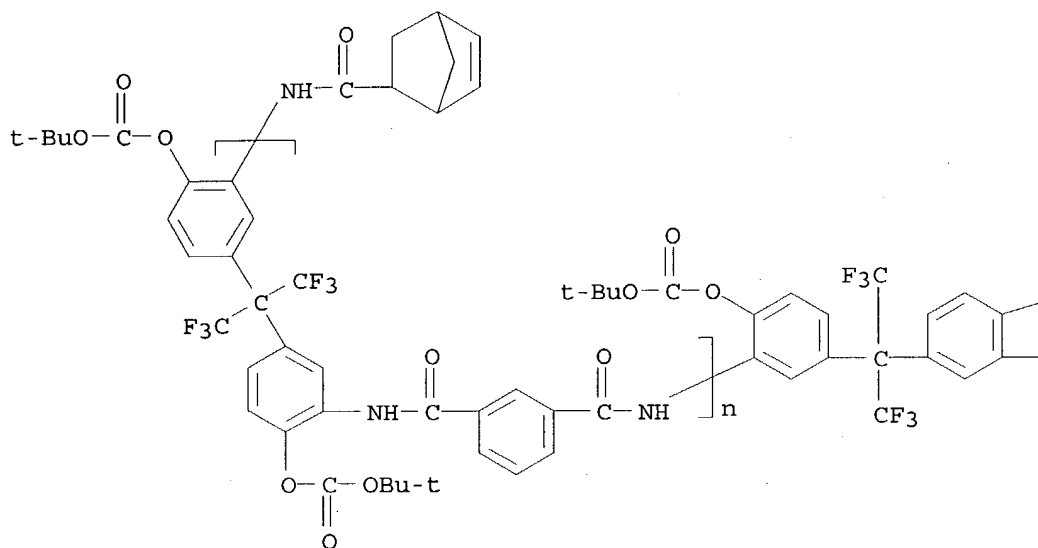
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical,  
engineering or chemical process); TEM (Technical or engineered material  
use); PREP (Preparation); PROC (Process); USES (Uses)

(poly-o-hydroxyamide in high-temperature-resistant  
**photoresist composition** for forming dielec. or buffer  
layer in microelectronics)

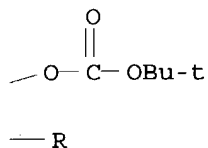
RN 512172-65-5 CAPLUS

CN Poly[iminocarbonyl-1,3-phenylenecarbonylimino[6-[[[(1,1-  
dimethylethoxy)carbonyl]oxy]-1,3-phenylene][2,2,2-trifluoro-1-  
(trifluoromethyl)ethylidene][4-[[[(1,1-dimethylethoxy)carbonyl]oxy]-1,3-  
phenylene]], α-[5-[1-[3-[(bicyclo[2.2.1]hept-5-en-2-  
ylcarbonyl)amino]-4-[[[(1,1-dimethylethoxy)carbonyl]oxy]phenyl]-2,2,2-  
trifluoro-1-(trifluoromethyl)ethyl]-2-[[[(1,1-dimethylethoxy)carbonyl]oxy]p  
henyl]-ω-[(bicyclo[2.2.1]hept-5-en-2-ylcarbonyl)amino]- (9CI) (CA  
INDEX NAME)

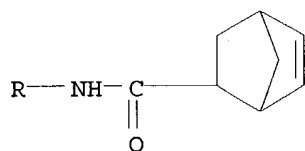
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PAGE 1-B



PAGE 2-A



IC ICM G03F007-038  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38, 76  
 ST **photoresist compn** poly ortho hydroxyamide deep UV  
 microelectronic **polybenzoxazole**

- IT **Photoresists**  
(UV; high-temperature-resistant photoresist compn  
. for forming dielec. or buffer layer in microelectronics)
- IT **Polybenzoxazoles**  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(acrylic; in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT **Polybenzoxazoles**  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(cardo, fluorine-containing; polybenzoxazole in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT Electric insulators  
Heat-resistant materials  
Microelectronic devices  
(high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT Polyesters, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyamide-, fluorine-containing; poly-o-hydroxyamide in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT Fluoropolymers, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyamide-polyester-; poly-o-hydroxyamide in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT Polyethers, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazole-, cardo; polybenzoxazole in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT Polyethers, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazole-, fluorine-containing; polybenzoxazole in high-temperature-resistant photoresist compn  
. for forming dielec. or buffer layer in microelectronics)
- IT Cardo polymers  
Fluoropolymers, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazole-polyether-; polybenzoxazole in



- high-temperature-resistant photoresist composition  
for forming dielec. or buffer layer in microelectronics)
- IT Cardo polymers  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazoles, fluorine-containing; polybenzoxazole  
in high-temperature-resistant photoresist compn  
. for forming dielec. or buffer layer in microelectronics)
- IT Polyamides, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyester-, fluorine-containing; poly-o-hydroxyamide in high-temperature-resistant photoresist composition for forming  
dielec. or buffer layer in microelectronics)
- IT Polybenzoxazoles  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyether-, cardo; polybenzoxazole in high-temperature-resistant photoresist composition for forming  
dielec. or buffer layer in microelectronics)
- IT Polybenzoxazoles  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyether-, fluorine-containing; polybenzoxazole in high-temperature-resistant photoresist composition for forming  
dielec. or buffer layer in microelectronics)
- IT 108-31-6DP, Maleic acid anhydride, reaction products with fluorine-containing polybenzoxazole-polyethers 72123-18-3P 512172-70-2P  
512172-71-3DP, reaction products with maleic acid anhydride 512172-72-4P  
512172-73-5P  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(in high-temperature-resistant photoresist compn  
. for forming dielec. or buffer layer in microelectronics)
- IT 1886-74-4 4450-68-4 41580-58-9 57840-38-7, Triphenylsulfonium hexafluoroantimonate 84563-54-2  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(photoacid in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)
- IT 920-46-7DP, Methacrylic acid chloride, reaction products acrylic polybenzoxazoles 27063-48-5DP, reaction products with fluorine-containing polyester-polyamides 512172-64-4DP, norbornenecarboxylic acid terminated 512172-65-5P 512172-67-7DP, methacrylic acid terminated  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(poly-o-hydroxyamide in high-temperature-resistant

**photoresist composition** for forming dielec. or buffer  
layer in microelectronics)

L154 ANSWER 14 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:298645 CAPLUS

DOCUMENT NUMBER: 138:328985

TITLE: High-temperature-resistant  
**photoresist composition** for forming  
dielectric or buffer layer in microelectronics

INVENTOR(S): Sezi, Recai

PATENT ASSIGNEE(S): Infineon Technologies AG, Germany

SOURCE: Ger. Offen., 18 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10145471	A1	20030417	DE 2001-10145471	20010914
US 2003099904	A1	20030529	US 2002-244257	20020916

PRIORITY APPLN. INFO.: DE 2001-10145471 A 20010914

AB The title **photoresist composition** comprises a poly-o-hydroxyamide with free hydroxy groups, a dissoln. inhibitor, a photoacid, and a polar solvent. The **photoresist compn** . shows high photosensitivity compared to a conventional quinone azide based **photoresist composition** After the cyclization conversion of poly-o-hydroxyamide into **polybenzoxazole**, the new **photoresist composition** shows surprisingly a smaller dielec. constant than the conventional quinone azide based **photoresist composition**

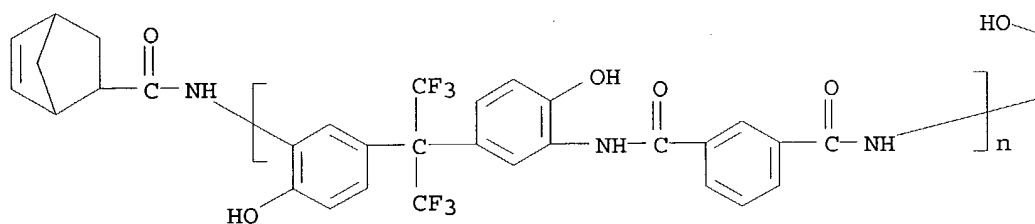
IT 512173-65-8P

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(poly-o-hydroxyamide in high-temperature-resistant **photoresist composition** for forming dielec. or buffer layer in microelectronics)

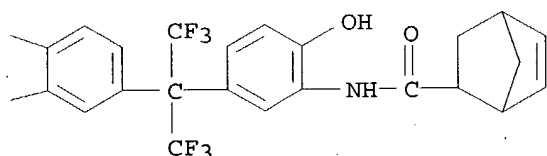
RN 512173-65-8 CAPLUS

CN Poly[iminocarbonyl-1,3-phenylenecarbonylimino(6-hydroxy-1,3-phenylene) [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] (4-hydroxy-1,3-phenylene)],  $\alpha$ -[5-[1-[3-[(bicyclo[2.2.1]hept-5-en-2-ylcarbonyl)amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]- $\omega$ -[(bicyclo[2.2.1]hept-5-en-2-ylcarbonyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



- IC ICM G03F007-038
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 76
- ST **photoresist compn** poly ortho hydroxyamide dielec  
buffer microelectronic **polybenzoxazole**
- IT **Polybenzoxazoles**  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(acrylic; in high-temperature-**resistant photoresist composition** for forming dielec. or buffer layer in microelectronics)
- IT **Polybenzoxazoles**  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(cardo, fluorine-containing; **polybenzoxazole** in high-temperature-**resistant photoresist composition** for forming dielec. or buffer layer in microelectronics)
- IT Electric insulators  
Heat-**resistant** materials  
Microelectronic devices  
**Photoresists**  
(high-temperature-**resistant photoresist composition** for forming dielec. or buffer layer in microelectronics)
- IT Polyvinyl butyrals  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(in high-temperature-**resistant photoresist compn** for forming dielec. or buffer layer in microelectronics)
- IT Polyesters, processes  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical,

engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyamide-, fluorine-containing; poly-o-hydroxyamide in high-temperature-  
**resistant photoresist composition** for forming  
dielec. or buffer layer in microelectronics)

IT Fluoropolymers, processes

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyamide-polyester-; poly-o-hydroxyamide in high-temperature-  
**resistant photoresist composition** for forming  
dielec. or buffer layer in microelectronics)

IT Polyethers, processes

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazole-, cardo; polybenzoxazole in  
high-temperature-**resistant photoresist composition**  
for forming dielec. or buffer layer in microelectronics)

IT Polyethers, processes

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazole-, fluorine-containing; polybenzoxazole  
in high-temperature-**resistant photoresist compn**  
. for forming dielec. or buffer layer in microelectronics)

IT Cardo polymers

Fluoropolymers, processes

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazole-polyether-; polybenzoxazole in  
high-temperature-**resistant photoresist composition**  
for forming dielec. or buffer layer in microelectronics)

IT Cardo polymers

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polybenzoxazoles, fluorine-containing; polybenzoxazole  
in high-temperature-**resistant photoresist compn**  
. for forming dielec. or buffer layer in microelectronics)

IT Polyamides, processes

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyester-, fluorine-containing; poly-o-hydroxyamide in high-temperature-  
**resistant photoresist composition** for forming  
dielec. or buffer layer in microelectronics)

IT Polybenzoxazoles

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(polyether-, cardo; polybenzoxazole in high-temperature-  
**resistant photoresist composition** for forming  
dielec. or buffer layer in microelectronics)

IT **Polybenzoxazoles**

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(polyether-, fluorine-containing; **polybenzoxazole** in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)

IT 774-65-2 1886-74-4 4450-68-4 5551-72-4 35343-63-6, tert-Butyl methacrylate-methacrylic acid copolymer 41580-58-9 57840-38-7, Triphenylsulfonium hexafluoroantimonate 84563-54-2 87188-51-0, p-tert-Butoxycarbonyloxystyrene 145531-11-9 380848-50-0 512173-70-5  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(in high-temperature-resistant photoresist compn for forming dielec. or buffer layer in microelectronics)

IT 27063-48-5DP, reaction products with fluorine-containing polyester-polyamides 112492-59-8DP, norbornenecarboxylic acid terminated **512173-65-8P**

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(poly-o-hydroxyamide in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)

IT 98-88-4DP, Benzoic acid chloride, reaction products with fluorine-containing cardo **polybenzoxazoles** 108-31-6DP, Maleic acid anhydride, reaction products with fluorine-containing **polybenzoxazole**-polyethers 920-46-7DP, Methacrylic acid chloride, reaction products with acrylic **polybenzoxazole** 512172-72-4DP, methacrylic acid terminated 512173-67-0P 512173-68-1DP, reaction products with maleic anhydride 512173-69-2DP, benzoic chloride terminated

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(**polybenzoxazole** in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)

IT 56-55-3, 1,2-Benzanthracene 120-12-7, Anthracene, processes 198-55-0, Perylene

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(sensitizer in high-temperature-resistant photoresist composition for forming dielec. or buffer layer in microelectronics)

L154 ANSWER 15 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:274807 CAPLUS

DOCUMENT NUMBER: 138:288731

TITLE: **Polybenzoxazole** precursors, their condensed crosslinked **polybenzoxazoles**, insulating films, and **semiconductor** devices

INVENTOR(S): Ishida, Yuichi; Enoki, Naoshi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003105086	A2	20030409	JP 2001-302665	20010928
PRIORITY APPLN. INFO.:			JP 2001-302665	20010928

AB The **polybenzoxazole** precursors comprise  
 [HNX(OH)2NHCOYCO]<sub>m</sub>[HNX(OH)2NHCOZCO]<sub>n</sub> [X = (substituted) tetravalent  
 benzene derivative group; Y = (substituted) naphthylethynyl-containing divalent  
 benzene derivative; Z = (substituted) benzene derivative or cyclohexane  
 derivative; m

>0; n ≥ 0; (m + n) = 2-1000; m/(m + n) = 0.05-1]. Thus, polymerization of  
 3,3'-diamino-4,4'-dihydroxybiphenyl and 5-(1-naphthylethynyl)isophthalic  
 acid dichloride gave a copolymer with Mn 7000, which was dissolved in  
 N-methyl-2-pyrrolidone, applied on a glass plate, and baked to give a  
 crosslinked **polybenzoxazole** film with dielec. constant 3.15, Tg  
 >450°, and 5% weight loss temperature 524°.

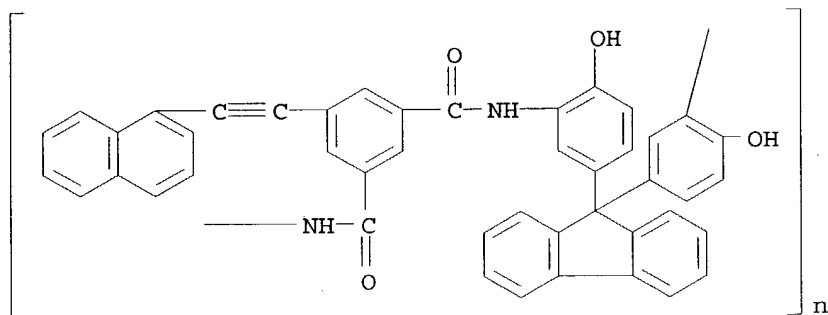
IT 505059-50-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)

(**polybenzoxazole** precursors and their condensed crosslinked  
**polybenzoxazoles** for insulating films with good heat  
 resistance)

RN 505059-50-7 CAPLUS

CN Poly[iminocarbonyl[5-(1-naphthalenylethynyl)-1,3-phenylene]carbonylimino(6-  
 hydroxy-1,3-phenylene)-9H-fluoren-9-ylidene(4-hydroxy-1,3-phenylene)]  
 (9CI) (CA INDEX NAME)



IC ICM C08G073-22

ICS C08J005-18; H01L021-312; C08L079-04

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST **polybenzoxazole** precursor polyamide insulating film

**semiconductor** crosslinking; aminohydroxybiphenyl naphthylethynyl

isophthaloyl chloride **polybenzoxazole** heat resistance

IT **Polybenzoxazoles**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
 use); PREP (Preparation); USES (Uses)

(cardo, crosslinked; **polybenzoxazole** precursors and their

- condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(cardo; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinked; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Heat-resistant materials  
(films; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(fluorine-containing, crosslinked; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(fluorine-containing; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Films  
(heat-resistant; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Fluoropolymers, preparation  
Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamide-; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamides; **polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Dielectric films  
**Semiconductor** devices  
(**polybenzoxazole** precursors and their condensed crosslinked **polybenzoxazoles** for insulating films with good heat resistance)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

- (polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT Fluoropolymers, uses  
Polyethers, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polybenzoxazole-, crosslinked; polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polybenzoxazoles, crosslinked; polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT Polybenzoxazoles  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-, crosslinked; polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyether-; polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT 505059-42-7P 505059-45-0P 505059-48-3P 505059-51-8P 505059-52-9P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinked; polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT 505059-41-6P 505059-44-9P 505059-47-2P 505059-50-7P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)
- IT 505059-40-5P 505059-43-8P 505059-46-1P 505059-49-4P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polybenzoxazole precursors and their condensed crosslinked polybenzoxazoles for insulating films with good heat resistance)

L154 ANSWER 16 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:271760 CAPLUS

DOCUMENT NUMBER: 138:288676

TITLE: Polybenzoxazole precursors and their condensate organic insulating films with good heat resistance

INVENTOR(S): Hase, Yoko

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan



SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003105085	A2	20030409	JP 2001-298562	20010927
PRIORITY APPLN. INFO.:			JP 2001-298562	20010927

AB The films, useful for **semiconductor** devices, etc., are manufactured by condensation of **polybenzoxazole** precursors (CONHX(OH)2NHCOY)n [X = substituted tetravalent benzene derivative group; Y = (substituted) divalent benzene derivative; n = 2-1000] prepared from bulky diaminophenols X(NH)2(OH)2 and bulky dicarboxylic acids Y(CO2H)2 (X, Y = same as the above). Thus, polymerization of 9,9-bis-[2-methyl-5-cyclohexyl-4-[(4-amino-3-hydroxy)phenoxy]phenyl]fluorene and 5-tert-butylisophthalic acid dichloride gave a copolymer with Mn 7.0 + 103 and Mw 1.36 + 104, which was dissolved in N-methyl-2-pyrrolidone, applied on a silicon wafer, dried, and baked to give a **polybenzoxazole** film with d. 1.17 g/cm<sup>3</sup>, dielec. constant 2.64, and 5% weight loss temperature 469°.

IT 505072-96-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polybenzoxazole precursors and their condensate organic insulating films with good heat resistance)

RN 505072-96-8 CAPLUS

CN Poly[oxy(2-cyclohexyl-5-methyl-1,4-phenylene)-9H-fluoren-9-ylidene(5-cyclohexyl-2-methyl-1,4-phenylene)oxy(3-hydroxy-1,4-phenylene)iminocarbonyl[5-(1,1-dimethylethyl)-1,3-phenylene]carbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

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IC ICM C08G073-22  
 ICS H01L021-312

CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 76

ST **polybenzoxazole** precursor polyamide insulating film bulky; heat resistance film **polybenzoxazole** polyether cardo **semiconductor**; methylcyclohexyl aminohydroxyphenoxyphenyl fluorene butylisophthaloyl chloride **polybenzoxazole**

IT Heat-resistant materials  
 (films; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)

IT Films  
 (heat-resistant; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)

- IT Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamide-, cardo; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamide-, fluorene group-containing, cardo; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyethers, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamide-; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamide-polyethers, fluorene group-containing; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyamide-polyethers; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Dielectric films  
**Semiconductor devices**  
(**polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyethers, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole**-, cardo; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyethers, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole**-, **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole**-polyether-; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyether-, cardo; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material

- use); PREP (Preparation); USES (Uses)  
 (polyether-, cardo; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyamides, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyether-, fluorene group-containing, cardo; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT Polyamides, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (polyether-; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT **Polybenzoxazoles**  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-; **polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT **505072-96-8P** 505073-00-7P 505073-04-1P 505073-11-0P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (**polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)
- IT 505072-95-7P 505072-97-9P 505072-99-1P 505073-01-8P 505073-03-0P 505073-06-3P 505073-09-6P 505073-13-2P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (**polybenzoxazole** precursors and their condensate organic insulating films with good heat resistance)

L154 ANSWER 17 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:36496 CAPLUS

DOCUMENT NUMBER: 138:91053

TITLE: Materials for organic insulating films and organic insulating films having low dielectric constants and good heat resistance

INVENTOR(S): Hase, Yoko; Katsumura, Akifumi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003012802	A2	20030115	JP 2001-195833	20010628
PRIORITY APPLN. INFO.:			JP 2001-195833	20010628

AB Diaminophenols react with bulky dicarboxylic acids to give **polybenzoxazole** precursors, which are dehydrated and condensed to form films. Thus, 5.65 parts 9,9-bis-{4-((4-amino-3-hydroxy)phenoxy-3-phenyl)phenyl}fluorene reacted with 2.06 parts 5-methylisophthalic acid dichloride to give a precursor, which was coated on a Si wafer and heated

to form an insulating coating.

IT 484066-53-7P 484066-56-0P 484066-59-3P  
484066-63-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)

(polybenzoxazoles for insulating films having low dielec.  
consts. and good heat resistance)

RN 484066-53-7 CAPLUS

CN Poly[oxy[1,1'-biphenyl]-2,5-diyl-9H-fluoren-9-ylidene[1,1'-biphenyl]-5,2-  
diyoxy(3-hydroxy-1,4-phenylene)iminocarbonyl(5-methyl-1,3-  
phenylene)carbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

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RN 484066-56-0 CAPLUS

CN Poly[oxy[1,1'-biphenyl]-2,5-diyl-9H-fluoren-9-ylidene[1,1'-biphenyl]-5,2-  
diyoxy(3-hydroxy-1,4-phenylene)iminocarbonyl[5-(1,1-dimethylethyl)-1,3-  
phenylene]carbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 484066-59-3 CAPLUS

CN Poly[oxy[1,1'-biphenyl]-2,5-diyl-9H-fluoren-9-ylidene[1,1'-biphenyl]-5,2-  
diyoxy(3-hydroxy-1,4-phenylene)iminocarbonyl[5-(trimethylsilyl)-1,3-  
phenylene]carbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

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\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 484066-63-9 CAPLUS

CN Poly[oxy[1,1'-biphenyl]-2,5-diyl-9H-fluoren-9-ylidene[1,1'-biphenyl]-5,2-  
diyoxy(3-hydroxy-1,4-phenylene)iminocarbonyl(5-tricyclo[3.3.1.1<sup>3,7</sup>]dec-1-  
yl-1,3-phenylene)carbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX  
NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

IC ICM C08G073-22  
ICS C08J005-18; H01B003-30; C08L079-04

CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76

ST **polybenzoxazole** elec insulator silicon wafer;  
aminohydroxyphenoxyphenylphenylfluorene methylisophthalic acid dichloride  
copolymer elec insulator; aminophenol carboxylic acid copolymer

IT Amines, uses  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(diamines, phenols, polymers with bulky dicarboxylic acids;  
**polybenzoxazoles** for insulating films having low dielec.  
consts. and good heat resistance)

IT Phenols, uses  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(diamino-, polymers with dicarboxylic acids; **polybenzoxazoles**  
for insulating films having low dielec. consts. and good heat  
resistance)

IT Carboxylic acids, uses  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(dicarboxylic, polymers with diaminophenols; **polybenzoxazoles**  
for insulating films having low dielec. consts. and good heat  
resistance)

IT Coating materials  
(heat-resistant; **polybenzoxazoles** for insulating films having  
low dielec. consts. and good heat resistance)

IT Cyclization  
Dehydration reaction  
Electric insulators  
Polymerization  
(**polybenzoxazoles** for insulating films having low dielec.  
consts. and good heat resistance)

IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazoles** for insulating films having low dielec.  
consts. and good heat resistance)

IT **Semiconductor** devices  
(wafers; **polybenzoxazoles** for insulating films having low  
dielec. consts. and good heat resistance)

IT 7440-21-3, Silicon, uses  
RL: DEV (Device component use); USES (Uses)  
(**polybenzoxazoles** for insulating films having low dielec.  
consts. and good heat resistance)

IT 484066-52-6P 484066-54-8P 484066-55-9P 484066-57-1P 484066-58-2P  
484066-60-6P 484066-62-8P 484066-64-0P 484066-65-1P 484066-67-3P  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)

(polybenzoxazoles for insulating films having low dielec.  
const. and good heat resistance)

IT 484066-53-7P 484066-56-0P 484066-59-3P  
484066-63-9P 484066-66-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)

(polybenzoxazoles for insulating films having low dielec.  
const. and good heat resistance)

L154 ANSWER 18 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:978475 CAPLUS

DOCUMENT NUMBER: 138:57579

TITLE: Composition and process for the production of a porous  
layer on substrates using the composition

INVENTOR(S): Sezi, Recai

PATENT ASSIGNEE(S): Germany

SOURCE: U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002198277	A1	20021226	US 2002-180438	20020626
DE 10130601	A1	20030109	DE 2001-10130601	20010626

PRIORITY APPLN. INFO.: DE 2001-10130601 A 20010626

AB Production of a porous layer on a substrate includes using a composition which  
includes a first polymer component and a second polymer component (such as  
polycarbonates, polyacetals, aliphatic polyethers, and polyesters), the first  
polymer component being polyhydroxyamide and/or polybenzoxazole  
and stable at a temperature at which the second polymer component decomp. and  
volatilizes. When the composition is heated to the decomposition temperature  
of the

second polymer component, the second component volatilizes and a porous  
layer that contains the first component remains.

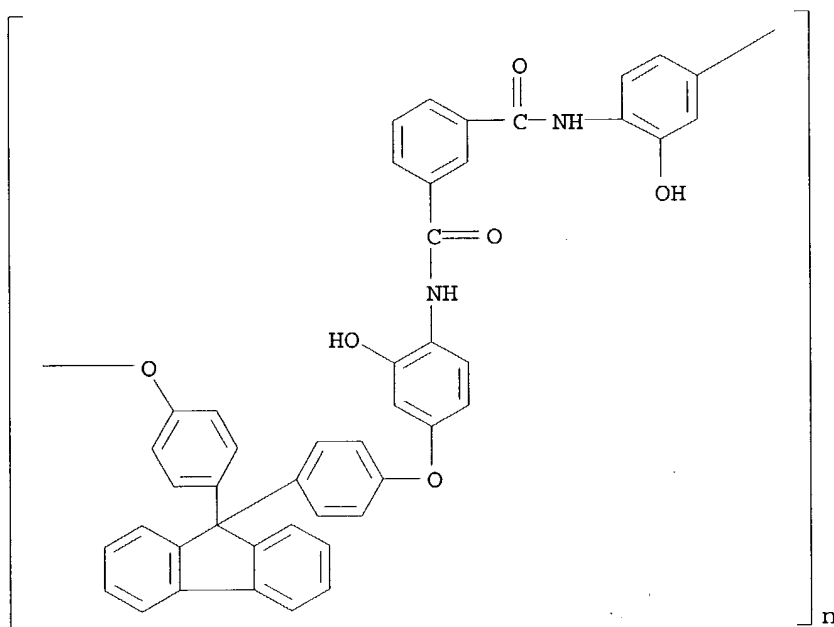
IT 479070-82-1P

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical,  
engineering or chemical process); POF (Polymer in formulation); TEM  
(Technical or engineered material use); PREP (Preparation); PROC  
(Process); USES (Uses)

(component with higher thermal stability; production of porous elec.  
insulating coatings by heating blends containing polymers that volatilize  
at lower temps. than other polymers in blends on substrates)

RN 479070-82-1 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-  
phenylene)iminocarbonyl-1,3-phenylenecarbonylimino(2-hydroxy-1,4-  
phenylene)] (9CI) (CA INDEX NAME)



IC ICM C08J009-00

NCL 521134000

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 76

ST porous polyhydroxyamide elec insulating coating; **polybenzoxazole**  
 porous elec insulating coating; polycarbonate volatilizable component  
 porous coating manuf; polyester volatilizable component porous coating  
 manuf; aliph polyether volatilizable component porous coating manuf;  
 polyacetal volatilizable component porous coating manuf; dielec porous  
 film **polybenzoxazole**

IT Polyethers, uses

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
 process); POF (Polymer in formulation); PROC (Process); USES (Uses)

(aliphatic, component with lower thermal stability; production of porous  
 elec.

insulating coatings by heating blends containing polymers that volatilize  
 at lower temps. than other polymers in blends on substrates)

IT Electric insulators

Porous materials

(coatings; production of porous elec. insulating coatings by heating blends  
 containing polymers that volatilize at lower temps. than other polymers in  
 blends on substrates)

IT **Polybenzoxazoles**

RL: TEM (Technical or engineered material use); USES (Uses)

(component with higher thermal stability; production of porous elec.  
 insulating coatings by heating blends containing polymers that volatilize  
 at lower temps. than other polymers in blends on substrates)

IT Polyesters, uses

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
 process); POF (Polymer in formulation); PROC (Process); USES (Uses)

(component with lower thermal stability; production of porous elec.  
 insulating coatings by heating blends containing polymers that volatilize

- at lower temps. than other polymers in blends on substrates)
- IT Polycarbonates, uses  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(component with lower thermal stability; production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT Polyamides, uses  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(hydroxy-containing, component with higher thermal stability; production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT Dielectric films  
(porous; production of porous dielec. films by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT Coating materials  
(porous; production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT Polyoxymethylenes, uses  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)  
(production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT 479070-81-ODP, carboxy-terminated 479070-82-1P  
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(component with higher thermal stability; production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT 9046-10-0, Polypropylene glycol bis(2-aminopropyl ether)  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)  
(component with lower thermal stability; production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)
- IT 479070-83-2P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(production of porous elec. insulating coatings by heating blends containing polymers that volatilize at lower temps. than other polymers in blends on substrates)

L154 ANSWER 19 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:858370 CAPLUS

DOCUMENT NUMBER: 138:122914

TITLE: Synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-



hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides

AUTHOR(S): Imai, Yoshio; Shibasaki, Yuji; Takeuchi, Hisashi; Park, Ki Hong; Kakimoto, Masa-Aki  
 CORPORATE SOURCE: Department of Organic and Polymeric Materials, Tokyo Institute of Technology, Tokyo, 152, Japan  
 SOURCE: High Performance Polymers (2002), 14(3), 253-260  
 CODEN: HPPOEX; ISSN: 0954-0083  
 PUBLISHER: Sage Publications  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB An ether-containing bis(o-aminophenol) monomer having a bulky diphenylfluorene unit, 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene, was synthesized by the reaction of 9,9-bis(4-hydroxyphenyl)fluorene with 2-benzyloxy-4-fluoronitrobenzene giving a bis-nitrobenzene compound, followed by catalytic reduction Diphenylfluorene-containing aromatic poly(ether

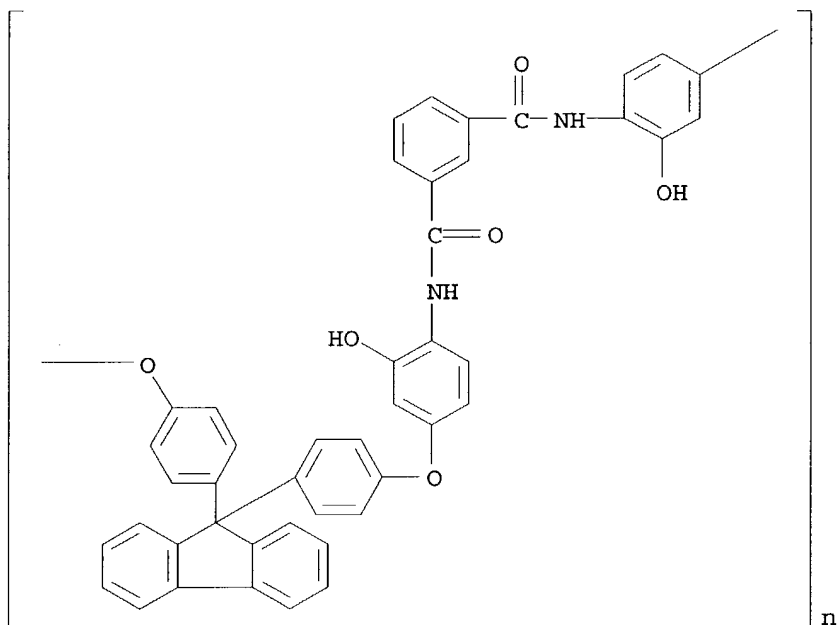
benzoxazole)s (PEBOs) having inherent viscosities of 0.57-0.74 dL g<sup>-1</sup> were obtained in two steps by the polycondensation of the bis(o-aminophenol) with various aromatic dicarboxylic acid chlorides giving precursor poly(ether o-hydroxyamide)s, and subsequent thermal cyclodehydration. These aromatic PEBOs were soluble on heating in N-methyl-2-pyrrolidone and m-cresol. The glass transition temps. and 10% weight loss temps. of the PEBOs were in the ranges of 258-294°C and 560-580°C, resp., in nitrogen.

IT 479070-82-1P 488838-66-0P 488838-71-7P  
 488838-73-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

RN 479070-82-1 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluorene-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,3-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



RN 488838-66-0 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 488838-71-7 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenyleneoxy-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 488838-73-9 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylenesulfonyl-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

CC 35-5 (Chemistry of Synthetic High Polymers)

ST bisaminophenol deriv dicarboxylic chloride synthesis diphenylfluorene  
contg polyether **polybenzoxazole**; sol thermal property polyether  
**polybenzoxazole**

IT Glass transition temperature

Solubility

Thermal stability

Viscosity

(of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Polyethers, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyamide-, aromatic, fluorene group-containing, cardo; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Polysulfones, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyamide-polyether-, aromatic, fluorene group-containing, cardo; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Cardo polymers

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyamide-polyether-polysulfones, aromatic, fluorene group-containing; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Cardo polymers

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyamide-polyethers, aromatic, fluorene group-containing; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Polyethers, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyamide-polysulfone-, aromatic, fluorene group-containing, cardo;

synthesis

and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Polyethers, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(**polybenzoxazole**-, cardo; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)

IT Polysulfones, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

- (polybenzoxazole-polyether-, aromatic; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT Cardo polymers  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polybenzoxazole-polyether-, aromatic; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT Polyethers, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polybenzoxazole-polysulfone-, aromatic; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT Polyamides, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-, aromatic, fluorene group-containing, cardo; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT Polybenzoxazoles  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-, cardo; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT Polyamides, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-polysulfone-, aromatic, fluorene group-containing, cardo; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT Polybenzoxazoles  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-polysulfone-, aromatic; synthesis and properties of soluble aromatic poly(ether benzoxazole)s from 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic dicarboxylic acid chlorides)
- IT 3236-71-3, 9,9-Bis(4-hydroxyphenyl)fluorene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(in reaction with benzyloxyfluoronitrobenzene)
- IT 129464-01-3P, 2-Benzyloxy-4-fluoronitrobenzene  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(in reaction with bishydroxyphenylfluorene)
- IT 359820-18-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer intermediate; preparation of, and in reduction reaction)
- IT 359642-31-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; preparation of by reduction reaction, and in polymerization)
- IT 359642-35-6P 359642-37-8P 359862-18-3P 479070-81-0P  
479070-82-1P 479070-83-2P 488838-66-0P 488838-69-3P

488838-71-7P 488838-72-8P 488838-73-9P 488838-74-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and properties of soluble aromatic poly(ether benzoxazole)s from  
9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene and aromatic  
dicarboxylic acid chlorides)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 20 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:734108 CAPLUS

DOCUMENT NUMBER: 137:270521

TITLE: Positive-working **photoresist** polyimide  
precursor resin **composition**

INVENTOR(S): Fujita, Yoji; Suwa, Atsushi; Tomikawa, Masao

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002278061	A2	20020927	JP 2001-80320	20010321
PRIORITY APPLN. INFO.:			JP 2001-80320	20010321

AB The title composition contains polymers and light sensitive material containing  
≥50% of light-sensitive quinonediazide derivative, wherein the polymer  
has main repeating unit [CO-R1(OH)p(COOR3)m-CONH-R2(OH)q-NH]n ( R1 =  
C≥2 2-8 valent orgs.; R2 = C≥2 2-6 valent orgs.; R3 = H,  
C2-20 orgs.; n = 10-100,000 integer; m = 0-2 integer; p,q = 0-4 integer,  
p+q>0) and wherein the light-sensitive quinonediazide derivative is a  
condensation compound of ≥3 phenols having ≥3 OH groups and a  
quinonediazide. The **composition** provides alkali-developable  
**photoresists**, which are suitable for **semiconductor**  
device layers such as surface protecting layer, insulating layer for  
interlayers.

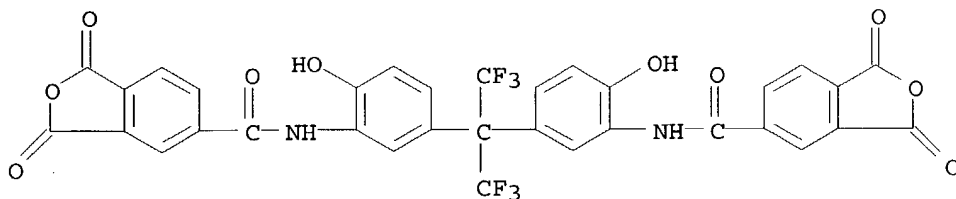
IT 223255-30-9P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)

(pos.-working **photoresist** polyimide precursor resin  
**composition**)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-  
(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-  
1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM G03F007-022  
ICS C08K005-28; C08L077-00; G03F007-037; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76

ST pos working **photoresist** polyimide precursor resin compn

IT Photoresists  
Semiconductor device fabrication  
(pos.-working **photoresist** polyimide precursor resin composition)

IT 80-05-7, Bisphenol A, reactions 99-57-0, 2-Amino-4-nitrophenol  
99-63-8, Isophthalic acid chloride 122-04-3, 4-Nitrobenzoyl chloride  
135-19-3, 2-Naphthol, reactions 552-30-7, Trimellitic acid anhydride  
38638-43-6, 1,2-Naphthoquinonediazide-5-sulfonic acid chloride  
83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(pos.-working **photoresist** polyimide precursor resin composition)

IT 25596-69-4P 36451-09-9DP, 1,2-Naphthoquinonediazide-4-sulfonic acid chloride, reaction products with phenol derivative 37829-64-4P 38595-90-3P  
46907-17-9P 129197-38-2P 172487-19-3P 223255-30-9P  
227795-35-9P 463298-14-8P 463298-15-9P 463298-16-0P 463298-62-6P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos.-working **photoresist** polyimide precursor resin composition)

L154 ANSWER 21 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:688210 CAPLUS

DOCUMENT NUMBER: 137:218085

TITLE: Epoxy resin compositions with low water absorption, dielectric constant, and good solder-heat resistance and preregs using them

INVENTOR(S): Yoshida, Tatsuhiko

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002256137	A2	20020911	JP 2001-55842	20010228

## PRIORITY APPLN. INFO.:

JP 2001-55842

20010228

AB The prepregs for printed circuit boards comprise substrates impregnated with epoxy resin compns. containing polyamides with repeating units of  $[NHX(OR1)(OR2)NHC(O)Y1CO]_m[NHX(OR3)(OR4)NHC(O)Y2CO]_n$  ( $m > 0$ ;  $n \geq 0$ ;  $m + n = 2-2000$ ;  $m/(m + n) 0.05-1$ ;  $R1-R4 = H$ , monovalent organic group;  $X =$  tetravalent aromatic group;  $Y1 =$  acetylenyl-substituted aromatic group, alkynyl-substituted aromatic group; divalent aromatic group; bisphenyleneacetylene;  $Y2 =$  divalent aromatic or alicyclic group). Thus, a composition containing Epikote 1001 100, 4,4'-diaminodiphenylmethane 25, benzyldimethylamine 0.3, and 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-4-ethynyl-2,6-naphthalenedicarboxyl chloride copolymer 20 parts was dissolved in a MEK/DMF 90/10 solvent to give a varnish, with which a glass fiber fabric was impregnated and dried to give a prepreg. A Cu-clad laminated board made of 8 pieces of thus obtained prepregs were laminated and hot-pressed to give a laminated board with moisture absorption 2.2%, dielec. constant 3.2, dielec. tangent 0.003,  $T_g 133^\circ$ , and good solder-heat resistance.

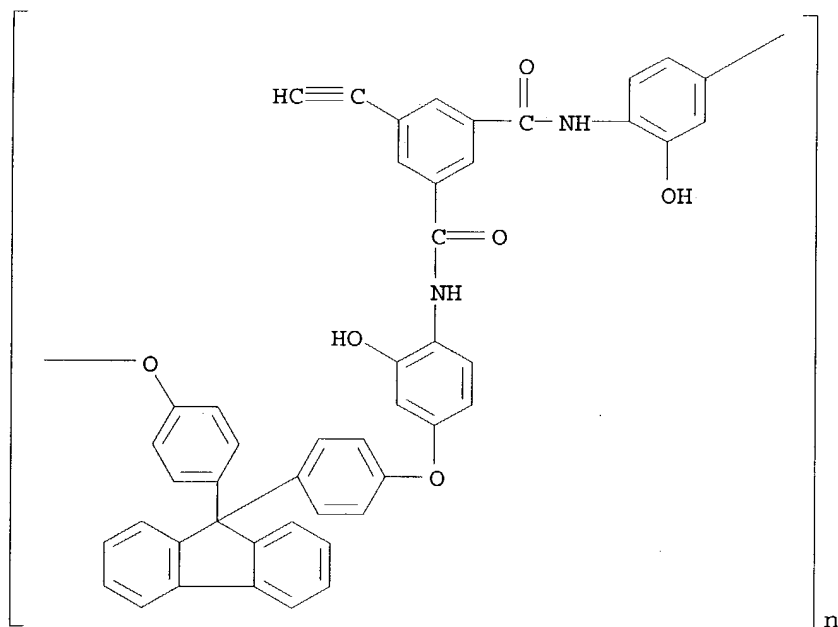
IT 457049-00-2P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)

RN 457049-00-2 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl(5-ethynyl-1,3-phenylene)carbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



IC ICM C08L063-00

ICS C08J005-24; C08L077-06

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37, 76

- ST epoxy resin crosslinkable alkynyl polyamide; solder heat water resistance prepreg printed circuit board; aminohydroxyphenyl fluoropropane ethynyl naphthalenedicarboxylate polymer epoxy resin prepreg
- IT Electric insulators  
Printed circuit boards  
(epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT Laminated plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(fiber-reinforced plastics; epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT Reinforced plastics  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fiber-reinforced, laminates; epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT Water-resistant materials  
(heat-resistant; epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT Reinforced plastics  
RL: TEM (Technical or engineered material use); USES (Uses)  
(prepregs; epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs)
- IT Glass fiber fabrics  
RL: TEM (Technical or engineered material use); USES (Uses)  
(reinforcer; epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT Heat-resistant materials  
(water-resistant; epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT 450408-23-8P 457048-99-6P 457049-00-2P 457068-28-9P  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)
- IT 457049-01-3P 457049-02-4P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(epoxy resin-polyamide compns. with low water absorption, dielec. constant, and good solder-heat resistance for prepregs of printed circuit boards)

L154 ANSWER 22 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:676319 CAPLUS

DOCUMENT NUMBER: 137:224114

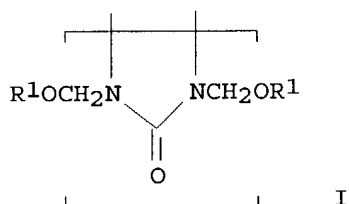
TITLE: Precursor composition for positive photosensitive resin suitable for fabricating display



INVENTOR(S): Suwa, Mitsuhiro; Miyoshi, Kazuto; Tomikawa, Masao  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: PCT Int. Appl., 63 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002069041	A1	20020906	WO 2002-JP1517	20020221
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2002328472	A2	20021115	JP 2002-41308	20020219
EP 1365289	A1	20031126	EP 2002-700653	20020221
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
US 2003194631	A1	20031016	US 2003-258660	20030303
PRIORITY APPLN. INFO.:			JP 2001-49951	A 20010226
			WO 2002-JP1517	W 20020221

GI



AB The invention relates to a precursor composition for an alkali-developable pos. photosensitive resin. The precursor composition comprises (a) a polyamic acid ester and/or polyamic acid polymer which are soluble in an aqueous alkali solution,

(b1) a heat-crosslinkable compound which contains a phenolic hydroxyl group and a methylol group substituted by an organic group R1 (provided that R1 is not hydrogen) or (b2) a heat-crosslinkable compound which contains a urea-derived organic group substituted by organic groups R1, and (c) An esterified quinone diazide compound. The heat-crosslinkable compound in (b1) is represented by  $-(CH_2-OR_1)$  [ $R_1 = C1-20\text{-alkyl}$ ,  $R_2CO$ ;  $R_2 = C1-20\text{-alkyl}$ ] and the heat-crosslinkable compound in (b2) is represented by I [ $R_1 = C1-20\text{-alkyl}$ ,  $R_2CO$ ;  $R_2 = C1-20\text{-alkyl}$ ]. The precursor **composition**, showing excellent heat-resistance, is suitable as a surface protection layer and an insulator layer in a **semiconductor** device and in an organic electroluminescent display.

IT 236095-20-8P 264604-36-6P 455943-58-5P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(in heat-resistant pos. photosensitive resin precursor **composition** suitable for fabricating insulator layer of display)

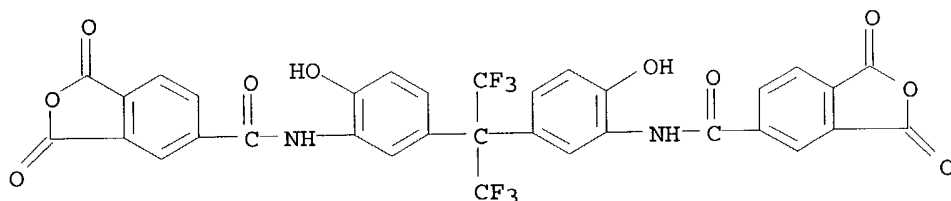
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CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

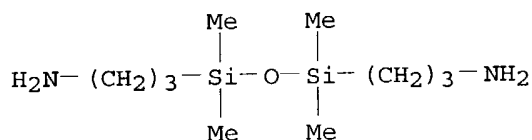
CMF C33 H16 F6 N2 O10



CM 2

CRN 2469-55-8

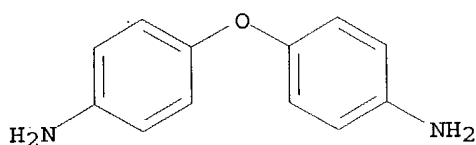
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



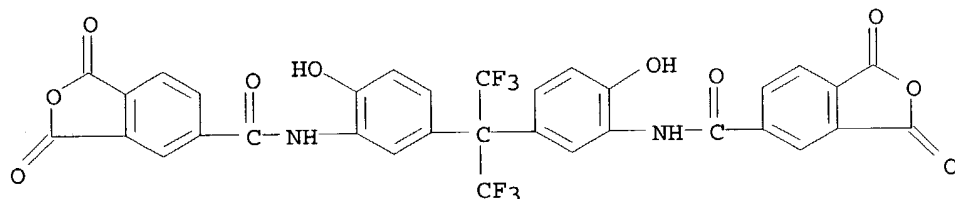
RN 264604-36-6 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[4-aminobenzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

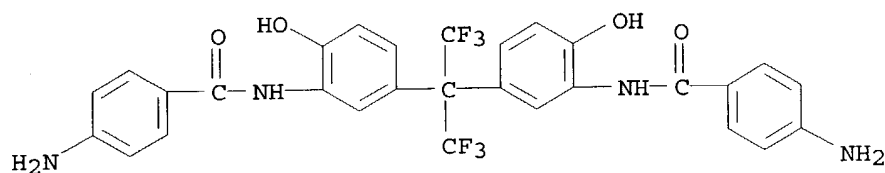
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CM 2

CRN 129197-38-2

CMF C29 H22 F6 N4 O4



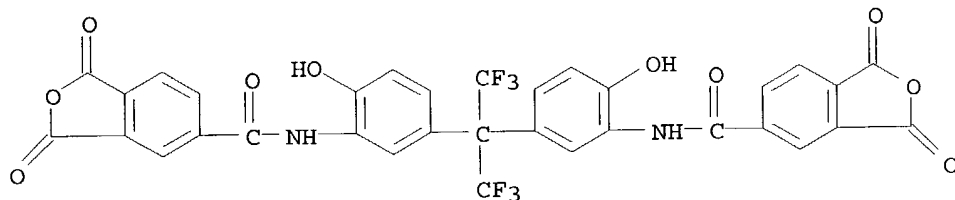
RN 455943-58-5 CAPLUS

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CM 1

CRN 223255-30-9

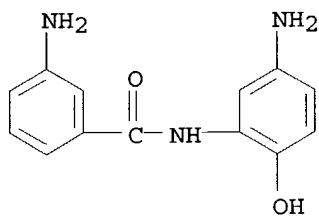
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CM 2

CRN 27431-43-2

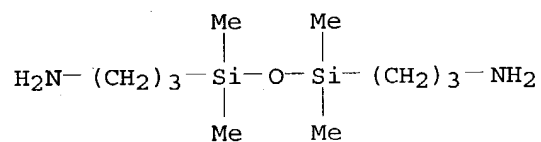
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CM 3

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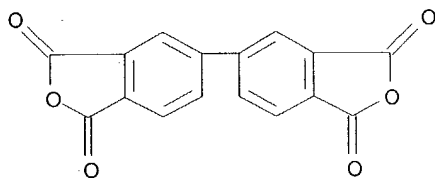
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CM 4

CRN 2420-87-3

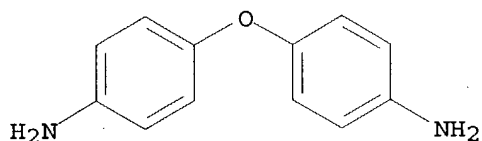
CMF C16 H6 O6



CM 5

CRN 101-80-4

CMF C12 H12 N2 O



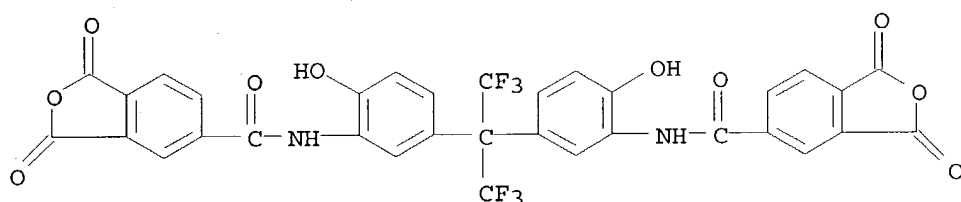
IT 223255-30-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of heat-resistant pos. photosensitive resin precursor composition)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM G03F007-037

ICS G03F007-022; G03F007-004; H05K003-06; H05B033-14

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 73, 76

ST pos working photosensitive polyimide precursor compn display fabrication; heat resistant coating material photoresist compn display fabrication

IT Electroluminescent devices

(displays; heat-resistant pos. photosensitive resin precursor composition suitable for fabricating display)

IT Luminescent screens

(electroluminescent; heat-resistant pos. photosensitive resin precursor composition suitable for fabricating display)

IT Crosslinking agents

Electrochromic imaging devices

Field emission displays

Liquid crystal displays

Photolithography

Positive photoresists

Semiconductor device fabrication

(heat-resistant pos. photosensitive resin precursor composition suitable for fabricating display)

IT Polyamic acids

Polybenzoxazoles

Polyimides, uses

RL: TEM (Technical or engineered material use); USES (Uses)

- (heat-resistant pos. photosensitive resin precursor  
composition suitable for fabricating display)
- IT Coating materials  
(heat-resistant; heat-resistant pos. photosensitive resin  
precursor composition suitable for fabricating display)
- IT 35512-24-4, BIR-PTBP  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(BIR-PTBP; preparation of heat-resistant pos. photosensitive resin  
precursor composition)
- IT 843-55-0, Bis-Z  
RL: TEM (Technical or engineered material use); USES (Uses)  
(Bis-Z, crosslinking agent; in heat-resistant pos.  
photosensitive resin precursor composition suitable for  
fabricating insulator layer of display)
- IT 151319-83-4, BisRS 2P  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(BisRS 2P; preparation of heat-resistant pos. photosensitive resin  
precursor composition)
- IT 22247-58-1, DML-MBPC  
RL: TEM (Technical or engineered material use); USES (Uses)  
(DML-MBPC, crosslinking agent; in heat-resistant pos.  
photosensitive resin precursor composition suitable for  
fabricating insulator layer of display)
- IT 2768-02-7, Vinyltrimethoxysilane 3957-22-0, TM-BIP-A 4356-60-9  
5568-04-7, DML-POP 17464-88-9 22247-59-2, DML-MTrisPC 42934-02-1,  
TML-HQ 93933-64-3, BIR-PC 109129-38-6 110726-28-8, TrisP-PA  
162846-59-5, HML-TPHAP 190321-06-3, Dimethylol BisOC-P 421546-91-0  
455943-61-0, TMOM-BP 457057-43-1, ML 26X 457057-45-3, 4PC  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinking agent; in heat-resistant pos. photosensitive  
resin precursor composition suitable for fabricating insulator  
layer of display)
- IT 151402-72-1P 236095-20-8P 264604-36-6P 281653-60-9P  
330687-43-9P 431041-54-2P 455943-58-5P 455943-60-9P  
455943-62-1P 455943-63-2P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(in heat-resistant pos. photosensitive resin precursor  
composition suitable for fabricating insulator layer of display)
- IT 930-37-0, Glycidyl methyl ether 4637-24-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(in heat-resistant pos. photosensitive resin precursor  
composition suitable for fabricating insulator layer of display)
- IT 64-17-5, Ethyl alcohol, reactions 80-05-7, Bisphenol A, reactions  
99-57-0, 2-Amino-4-nitrophenol 99-63-8, Isophthalic acid chloride  
122-04-3, 4-Nitrobenzoylchloride 1107-00-2, 2,2-Bis(3,4-  
dicarboxyphenyl)hexafluoropropanedianhydride 1204-28-0, Trimellitic  
anhydride chloride 2421-28-5, 3,3',4,4'-Benzophenonetetracarboxylic acid  
dianhydride 3770-97-6, 1,2-Naphthoquinonediazide-5-sulfonyl chloride  
7719-09-7, Thionyl chloride 27955-94-8, TrisP HAP 36451-09-9,  
1,2-Naphthoquinonediazide-4-sulfonyl chloride 83558-87-6,  
2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of heat-resistant pos. photosensitive resin precursor  
composition)

IT 25596-69-4P 27431-43-2P 38595-90-3P 50853-29-7P, Diethyl  
pyromellitate 51063-33-3P, Diethyl 3,3',4,4'-  
benzophenonetetracarboxylate 129197-38-2P 129388-96-1P 151598-18-4P  
157445-87-9P **223255-30-9P** 455943-56-3P 455943-57-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation of heat-resistant pos. photosensitive resin precursor  
composition)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 23 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2002:313331 CAPLUS  
DOCUMENT NUMBER: 136:348301  
TITLE: Alkali-developable positive-working photosensitive  
resin precursor compositions  
INVENTOR(S): Suwa, Atsushi; Fujita, Yoji; Tomikawa, Masao  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

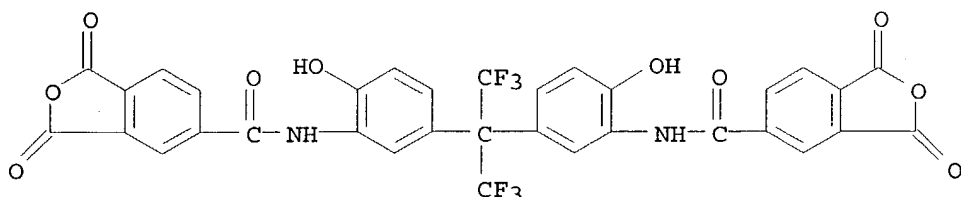
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002122991	A2	20020426	JP 2000-319070	20001019
PRIORITY APPLN. INFO.:			JP 2000-319070	20001019

AB The compns., useful for surface protective film **semiconductor**  
devices, interlayer insulating films, etc., contain (a) polymers which  
mainly comprise [COR1(OH)p(CO2R3)mCONHR2(OH)qNH]n (R1 = C<sub>≥</sub>2  
2-8-valent organic group; R2 = C<sub>≥</sub>2 2-6-valent organic group; R3 = H,  
C1-20 organic group; n = 1-10,000; m = 0-2; p, q = 0-4; p + q > 0) and show  
mol. weight distribution (Mw/Mn) 2.2-10, (b) phenols, and (c) esterified  
quinonediazide compds. The compns. show high resolution, sensitivity, and  
residual film rate.

IT **223255-30-9P**  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(alkali-developable pos.-working **photoresist compns**  
. containing polyimide precursors, phenols, and quinonediazide esters)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-  
(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-  
1,3-dioxo- (9CI) (CA INDEX NAME)



IT 417702-08-0P 417702-09-1P 417702-11-5P  
417702-12-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(alkali-developable pos.-working photoresist compns

. containing polyimide precursors, phenols, and quinonediazide esters)

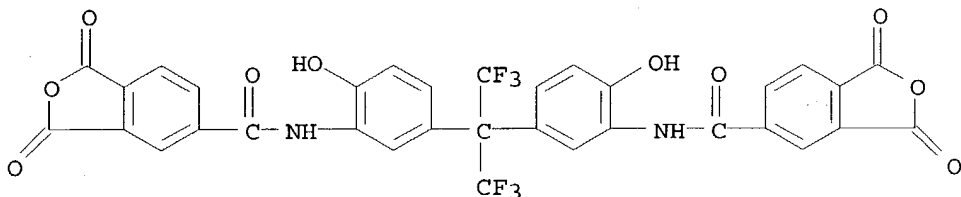
RN 417702-08-0 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4-ethynylbenzenamine, 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

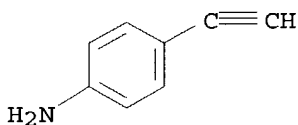
CMF C33 H16 F6 N2 O10



CM 2

CRN 14235-81-5

CMF C8 H7 N

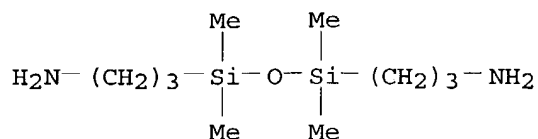


CM 3

CRN 2469-55-8



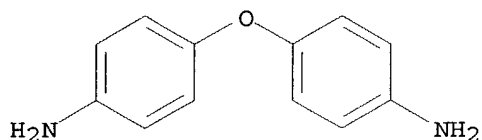
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CM 4

CRN 101-80-4

CMF C12 H12 N2 O



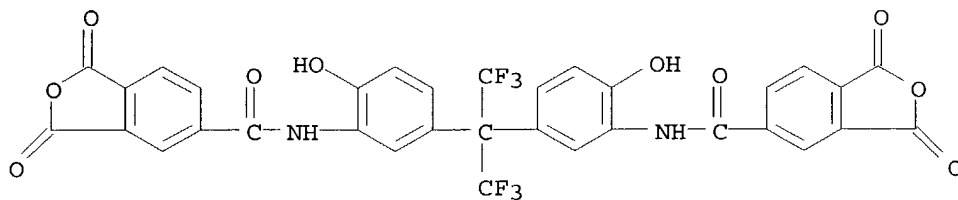
RN 417702-09-1 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with Sumidur N 3300 and N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[4-aminobenzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

CMF C33 H16 F6 N2 O10



CM 2

CRN 141911-55-9

CMF Unspecified

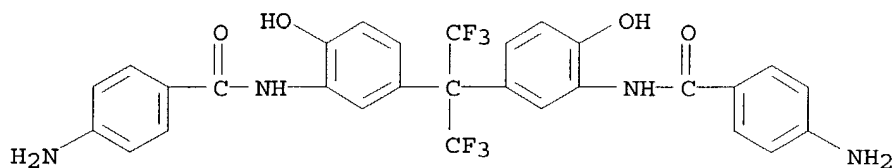
CCI PMS, MAN

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CM 3

CRN 129197-38-2

CMF C29 H22 F6 N4 O4



RN 417702-11-5 CAPLUS

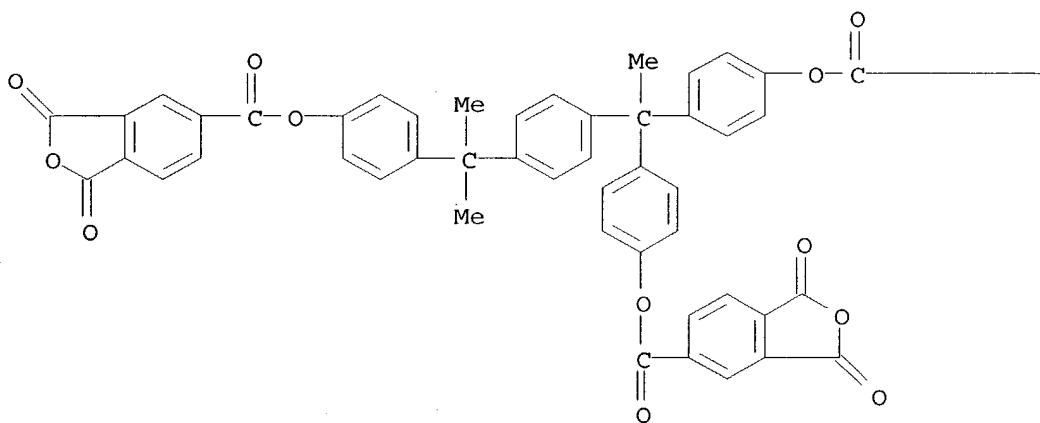
CN 5-Isobenzofurancarboxylic acid, 1,3-dihydro-1,3-dioxo-, ethylidynetri-4,1-phenylene ester, polymer with 3-amino-N-(5-amino-2-hydroxyphenyl)benzamide, [1-[4-[1-[4-[[[(1,3-dihydro-1,3-dioxo-5-isobenzofuranyl) carbonyl]oxy]phenyl]-1-methylethyl]phenyl]ethylidene]di-4,1-phenylene bis(1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylate), 4,4'-oxybis[benzenamine], 5,5'-oxybis[1,3-isobenzofurandione], 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] and N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxamide] (9CI) (CA INDEX NAME)

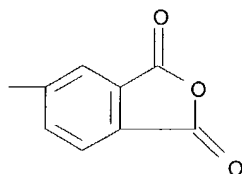
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CRN 417702-06-8

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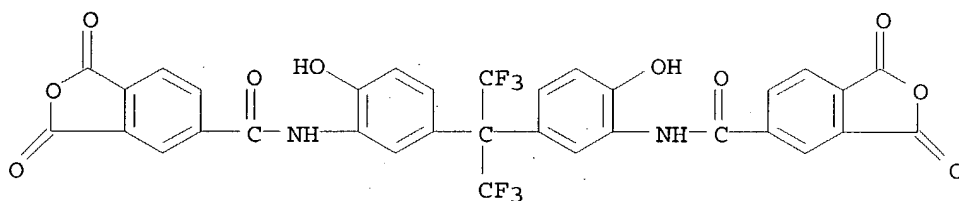
PAGE 1-A





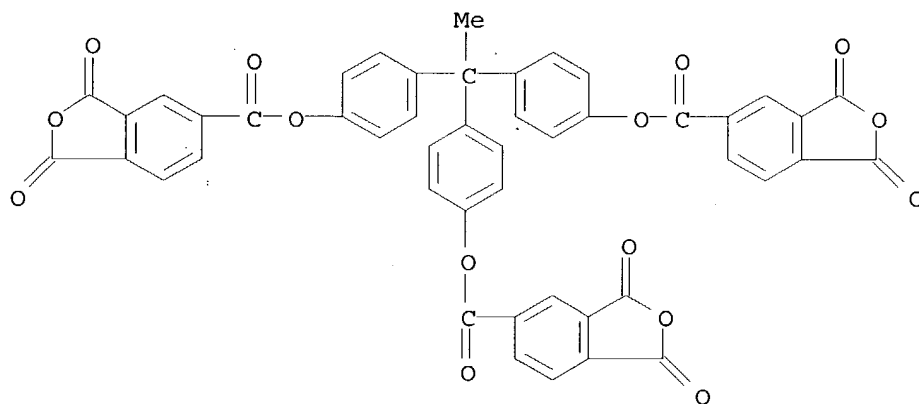
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CRN 223255-30-9  
CMF C33 H16 F6 N2 O10



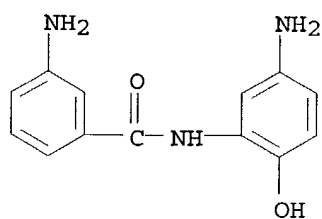
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CMF C47 H24 O15



CM 4

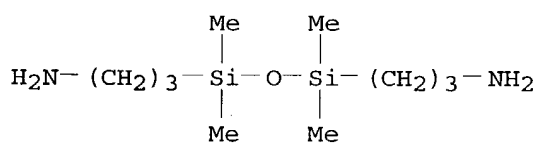
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CM 5

CRN 2469-55-8

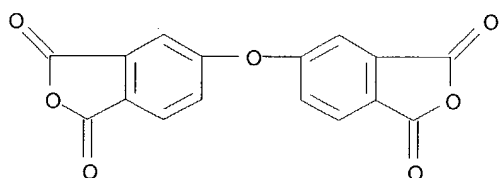
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CM 6

CRN 1823-59-2

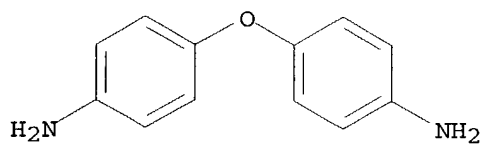
CMF C16 H6 O7



CM 7

CRN 101-80-4

CMF C12 H12 N2 O



RN 417702-12-6 CAPLUS

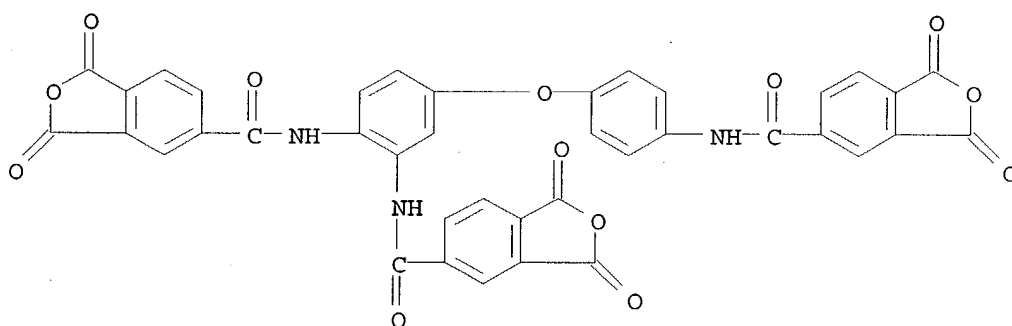
CN 5-Isobenzofurancarboxamide, N,N'-[4-[4-[[[(1,3-dihydro-1,3-dioxo-5-isobenzofuranyl) carbonyl] amino] phenoxy]-1,2-phenylene]bis[1,3-dihydro-1,3-

dioxo-, polymer with 3-amino-N-(5-amino-2-hydroxyphenyl)benzamide, 4,4'-oxybis[benzenamine], 5,5'-oxybis[1,3-isobenzofurandione], 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] and N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxamide] (9CI) (CA INDEX NAME)

CM 1

CRN 417702-07-9

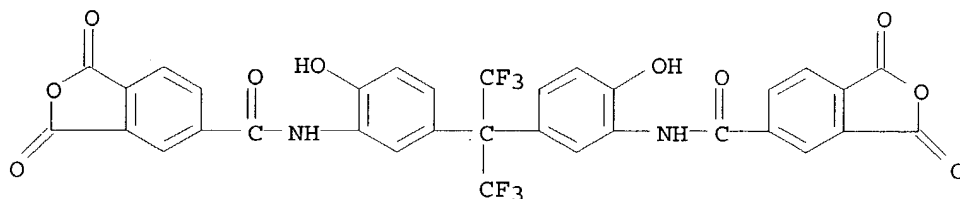
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CM 2

CRN 223255-30-9

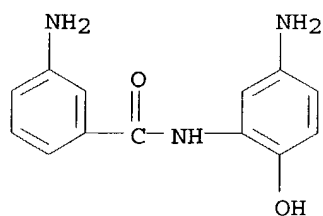
CMF C33 H16 F6 N2 O10



CM 3

CRN 27431-43-2

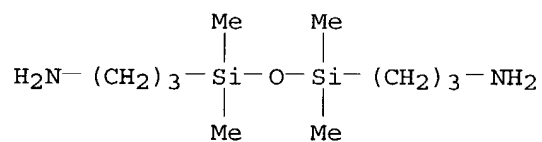
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CM 4

CRN 2469-55-8

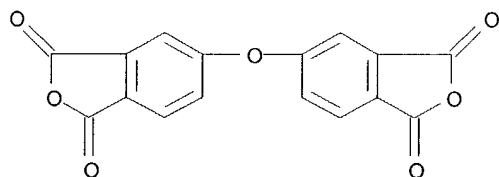
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CM 5

CRN 1823-59-2

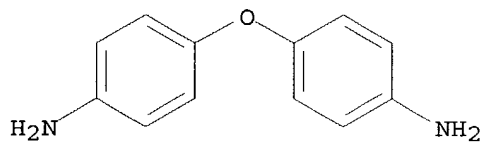
CMF C16 H6 O7



CM 6

CRN 101-80-4

CMF C12 H12 N2 O



IC ICM G03F007-037

ICS C08G073-10; C08K005-13; C08K005-28; C08L079-08; G03F007-004;

G03F007-022; H01L021-312

- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST alkali developable pos photoresist polyamic acid phenol
- IT Positive photoresists  
(UV; alkali-developable pos.-working **photoresist compns.** containing polyimide precursors, phenols, and quinonediazide esters)
- IT Phenols, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)
- IT Polyamic acids  
RL: TEM (Technical or engineered material use); USES (Uses)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)
- IT 53155-39-8P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)
- IT 843-55-0 93933-64-3  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)
- IT 99-57-0, 2-Amino-4-nitrophenol 99-63-8, Isophthaloyl chloride 122-04-3, 4-Nitrobenzoyl chloride 1204-28-0, Trimellitic anhydride chloride 6264-66-0, 3,4,4'-Triaminodiphenyl ether 27955-94-8, TrisP-HAP 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane 110726-28-8, TrisP-PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)
- IT 25596-69-4P 27431-43-2P 129197-38-2P 144773-50-2P 223255-30-9P 417702-06-8P 417702-07-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)
- IT 417702-08-0P 417702-09-1P 417702-10-4P 417702-11-5P 417702-12-6P 417702-13-7P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(alkali-developable pos.-working **photoresist compns** . containing polyimide precursors, phenols, and quinonediazide esters)

L154 ANSWER 24 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:63548 CAPLUS

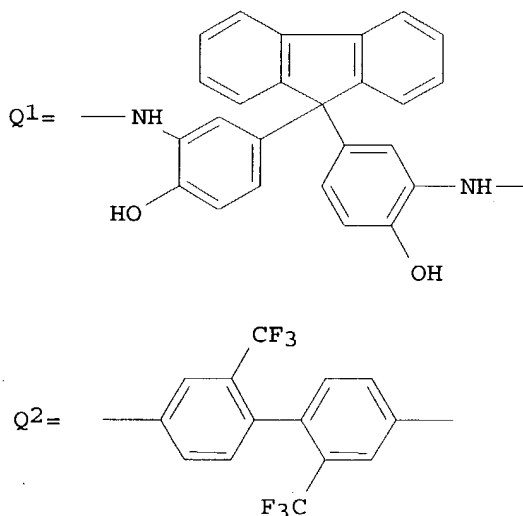
DOCUMENT NUMBER: 136:142606

TITLE: Fluorenediamine-derived polyamide, positively-working photosensitive polyamide composition, and **semiconductor** device using the composition

INVENTOR(S): Hirano, Takashi; Banba, Toshio

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002020485	A2	20020123	JP 2000-206005	20000707
PRIORITY APPLN. INFO.: GI			JP 2000-206005	20000707



AB The polyamide is that represented as  $[[XC(O)YC(O)]_a[NHZNHC(O)HC(O)]_b]_n$  [I; X = divalent aromatic group Q1; Y = o-, m-, or p-C<sub>6</sub>H<sub>4</sub>; p-C<sub>6</sub>H<sub>4</sub>-p-C<sub>6</sub>H<sub>4</sub>, o-C<sub>6</sub>H<sub>4</sub>-o-C<sub>6</sub>H<sub>4</sub>, m-C<sub>6</sub>H<sub>4</sub>-m-C<sub>6</sub>H<sub>4</sub>, p-C<sub>6</sub>H<sub>4</sub>-p-AC<sub>6</sub>H<sub>4</sub>, Q2, A = CH<sub>2</sub>, CMe<sub>2</sub>, O, S, SO<sub>2</sub>, CO, NHCO, C(CF<sub>3</sub>)<sub>2</sub>; Z = R<sub>1</sub>SiR<sub>3</sub>R<sub>4</sub>OSiR<sub>3</sub>R<sub>4</sub>(R<sub>2</sub>); R<sub>1</sub>, R<sub>2</sub> = divalent organic group; R<sub>3</sub>, R<sub>4</sub> = monovalent organic group; a + b = 100; a = 60-100; b = 0-40; n = 2-200]. The photosensitive **composition**, showing heat **resistance** and providing cured films with low dielec. constant, consists of 100 parts I and 1-100 parts photosensitive diazoquinone compound. The **semiconductor** device is that prepared by applying of the composition on a **semiconductor** chip so that cured film with 0.1-30 μm thickness is obtained, prebaking, exposing, developing, and heating of the applied composition layer followed by sealing of the resulting chip.

IT 391671-50-4P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

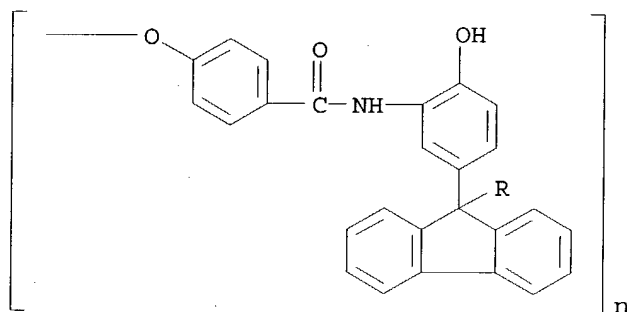
(pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)

RN 391671-50-4 CAPLUS

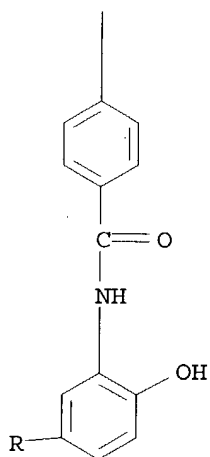


CN Poly[oxy-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)-9H-fluoren-9-ylidene(4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



- IC ICM C08G069-42  
ICS C08K005-13; C08K005-23; C08L077-06; G03F007-022; G03F007-037; G03F007-075; H01L021-027; H01L023-29; H01L023-31
- CC 74-4 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 76
- ST polyamide pos working photosensitive compn diazoquinone; fluorenediamine polyamide photosensitive **semiconductor** device packaging
- IT Polyamides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(cardo; pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)
- IT Cardo polymers  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polyamides; pos.-working photosensitive composition containing

fluorenediamine-derived polyamide for **semiconductor** device fabrication)

IT Electric insulators  
Electronic packaging process  
Photolithography  
(pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)

IT Polyamides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)

IT 603-44-1 2467-02-9  
RL: MOA (Modifier or additive use); USES (Uses)  
(in pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)

IT 391671-48-0P 391671-49-1P **391671-50-4P** 391671-51-5P  
391936-35-9P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)

IT 137902-98-8 138636-85-8  
RL: TEM (Technical or engineered material use); USES (Uses)  
(pos.-working photosensitive composition containing fluorenediamine-derived polyamide for **semiconductor** device fabrication)

L154 ANSWER 25 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:36602 CAPLUS

DOCUMENT NUMBER: 136:103469

TITLE: Heat-resistant resin compositions  
useful for **semiconductor** devices with good  
adhesion and low absorbance

INVENTOR(S): Okuda, Ryoji; Fujiwara, Takenori; Tomikawa, Masao

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002012761	A2	20020115	JP 2001-112287	20010411
PRIORITY APPLN. INFO.:			JP 2000-129395	A 20000428

AB The compns. useful for surface protective and insulative uses for **semiconductor** devices contain triazine and/or vinyl group-containing compds. and [COR1(OH)p(CO2R3)nCONHR2(OH)q(CO2R4)oNH]m [R1, R2 = (2-8 valent) organic group containing  $\geq 2$  C atoms; R3, R4 = H, alkali metal ion, ammonium ion, C1-20 organic group; m = 3-100,000; n = 0-2; p, q = 0-4; n + q > 0]. Thus, cyanuric acid triallyl ester was mixed with a mixture containing 4,4'-diaminodiphenyl ether-pyromellitic anhydride-3,3',4,4'-benzophenonetetracarboxylic dianhydride copolymer, N,N-dimethylaminoethylmethacrylamide, N-phenylglycin, ethylene glycol

dimethacrylate, and 3,3'-carbonylbis(7-diethylaminocoumalin), the resulting mixture was applied on a glass substrate, dried, and cured to give a 1  $\mu$ m film showing absorbance 0.035 at 500 nm.

IT 236095-20-8P 261373-47-1DP, ester with  
N,N-dimethylformamide di-Me acetal  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(heat-resistant resin compns. useful for  
semiconductor devices with good adhesion and low absorbance)

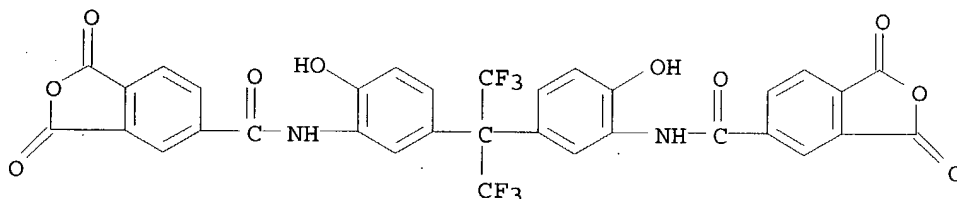
RN 236095-20-8 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

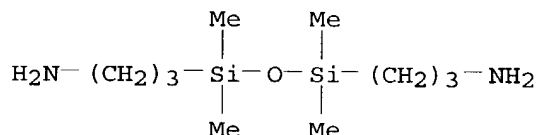
CMF C33 H16 F6 N2 O10



CM 2

CRN 2469-55-8

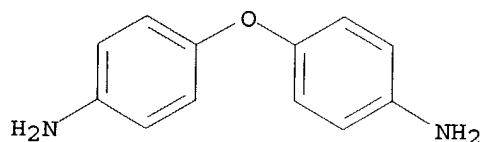
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



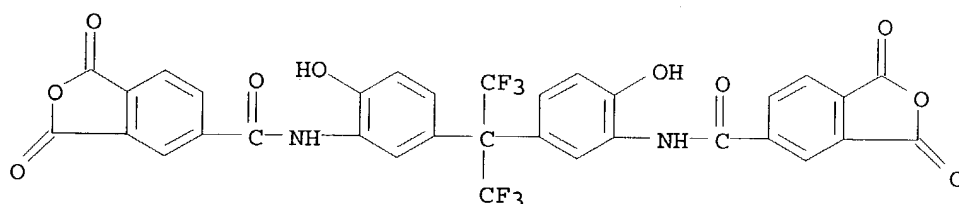
RN 261373-47-1 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

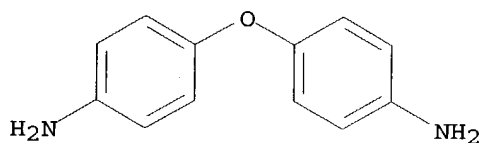
CMF C33 H16 F6 N2 O10



CM 2

CRN 101-80-4

CMF C12 H12 N2 O



IT 223255-30-9P

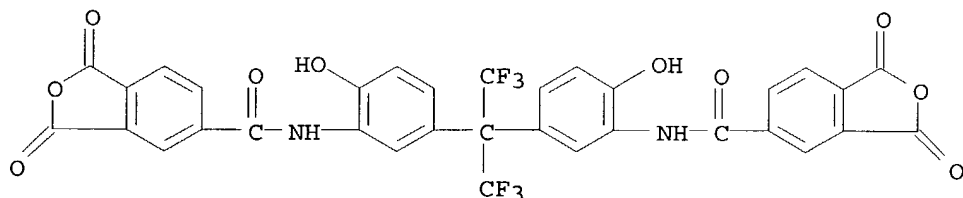
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(heat-resistant resin compns. useful for

semiconductor devices with good adhesion and low absorbance)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



- IC ICM C08L079-08  
ICS C08F002-44; C08F283-04; C08G073-06; C08G073-10; C08K005-00;  
C08K005-17; C08K005-28; C08K005-3492; C08L079-04; H01L021-312;  
H01L021-768
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76
- ST heat **resistant compn semiconductor** film  
triazine; interlayer insulator absorbance ethylene glycol methacrylate;  
surface protective layer pyromellitic anhydride quinonediazide; photoacid  
generator cyanuric acid ester film
- IT Polyimides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP  
(Properties); TEM (Technical or engineered material use); PREP  
(Preparation); USES (Uses)  
(fluorine-containing; heat-**resistant resin compns.**  
useful for **semiconductor** devices with good adhesion and low  
absorbance)
- IT Heat-**resistant** materials  
**Semiconductor** devices  
(heat-**resistant resin compns.** useful for  
**semiconductor** devices with good adhesion and low absorbance)
- IT Polyimides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP  
(Properties); TEM (Technical or engineered material use); PREP  
(Preparation); USES (Uses)  
(heat-**resistant resin compns.** useful for  
**semiconductor** devices with good adhesion and low absorbance)
- IT Polyimides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP  
(Properties); TEM (Technical or engineered material use); PREP  
(Preparation); USES (Uses)  
(polybenzoxazole-; heat-**resistant resin**  
**compns.** useful for **semiconductor** devices with good  
adhesion and low absorbance)
- IT Fluoropolymers, uses  
**Polybenzoxazoles**  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP  
(Properties); TEM (Technical or engineered material use); PREP  
(Preparation); USES (Uses)  
(polyimide-; heat-**resistant resin compns.** useful  
for **semiconductor** devices with good adhesion and low  
absorbance)
- IT 84329-58-8P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,3-bis(3-  
aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-pyromellitic  
anhydride copolymer 90863-90-4P, BEM-S-pyromellitic anhydride copolymer

129219-16-5P 232589-14-9DP, ester with N,N-dimethylformamide di-Me acetal 236095-20-8P 261373-47-1DP, ester with N,N-dimethylformamide di-Me acetal 389085-23-8P, N,N-Dimethylaminoethylmethacrylamide-ethylene glycol dimethacrylate copolymer 389085-32-9P, 3,5-Diaminobenzoic acid-4,4'-diaminodiphenylether-3,3',4,4'-diphenylether tetracarboxylic dianhydride dibutyl ester dichloride copolymer 389086-41-3P, 4,4'-Diaminodiphenyl ether-pyromellitic anhydride copolymer ester with 2-hydroxyethyl methacrylate, polymer with trimethylolpropane triacrylate, ethylene glycol dimethacrylate, and 3-methacryloxypropyldimethoxysilane

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(heat-resistant resin compns. useful for semiconductor devices with good adhesion and low absorbance)

IT 220426-92-6P 223255-30-9P 251650-61-0P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(heat-resistant resin compns. useful for semiconductor devices with good adhesion and low absorbance)

IT 78-08-0, Vinyltriethoxysilane 100-42-5, Styrene, uses 101-37-1, Triallyl cyanurate 290-87-9, 1,3,5-Triazine 1025-15-6, Triallyl isocyanurate 1087-21-4, Diallyl isophthalate 2768-02-7, Vinyltrimethoxysilane

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(heat-resistant resin compns. useful for semiconductor devices with good adhesion and low absorbance)

IT 119666-27-2 172491-61-1, 4NT-300

RL: MOA (Modifier or additive use); USES (Uses)

(photoacid generator; heat-resistant resin compns. useful for semiconductor devices with good adhesion and low absorbance)

IT 4024-72-0, o-Quinonediazide

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(photoacid generator; heat-resistant resin compns. useful for semiconductor devices with good adhesion and low absorbance)

L154 ANSWER 26 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:927390 CAPLUS

DOCUMENT NUMBER: 136:54878

TITLE: Polyamide compositions and their dielectric films with excellent heat resistance and water absorption

INVENTOR(S): Yoshida, Tatsuhiro; Okanuma, Masako; Murata, Mitsuru

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2001354852 A2 20011225 JP 2000-180505 20000615  
 PRIORITY APPLN. INFO.: JP 2000-180505 20000615

AB The **compns.**, useful for interlayer dielects., solder **resists**, etc., contain polyamides having units  
 $[C:ONHX(OH)2NHC:OY]l[C:ONHX(OH)2NHC:OZ]m$  (X = tetravalent aromatic group; Y = divalent biphenylene; Z = divalent aromatic group;  $l > 0$ ;  $m > 0$ ;  $l + m = 2-1000$ ;  $l/(l + m) = 0.05-1$ ) and oligomers. Thus, a composition containing 100 parts 2,6-biphenylenedicarbonyl chloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic chloride copolymer and 5 parts poly(Me methacrylate) with Mn 5000 was applied on a glass plate and heated to give a film which have pores with size  $\leq 5$  nm and show sp. dielec. constant 2.5, 5% weight loss temperature 543°, glass-transition temperature 405°, and H2O absorption 0.2%.

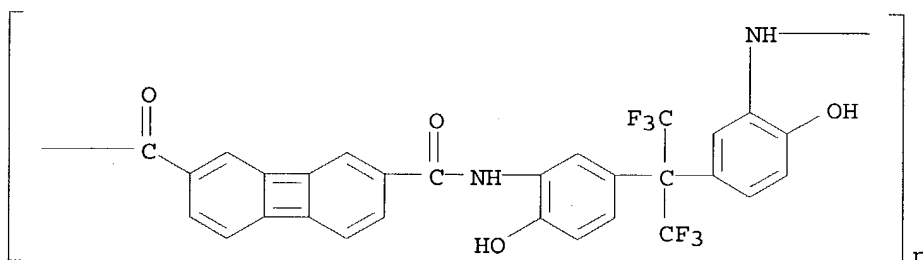
IT **382608-45-9P**

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinked; polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)

RN 382608-45-9 CAPLUS

CN Poly[imino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl-2,7-biphenylenediylcarbonyl] (9CI) (CA INDEX NAME)



IC ICM C08L079-04

ICS C08G073-22; C08J009-04; C08L101-00; H01B003-30; H01L021-312; H01L021-768

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST dielec film biphenylene polyamide acrylic oligomer; water absorption polyamide porous film **semiconductor**; heat resistance polyamide crosslinking **polybenzoxazole** film

IT Polyamides, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinked; polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)

IT Heat-resistant materials

- Porous materials  
(films; polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT Films  
(heat-resistant; polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT Dielectric films  
Plastic films  
(polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT Polyoxyalkylenes, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT Polymer blends  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT Films  
(porous; polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT 382608-43-7P, 2,6-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic chloride copolymer  
382608-44-8P, 2,7-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane copolymer **382608-45-9P**  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinked; polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)
- IT 9003-11-6, Ethylene oxide-propylene oxide copolymer 9003-53-6, Polystyrene 9011-14-7, Poly(methyl methacrylate) 25322-69-4  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(polyamide compns. containing oligomers for dielec. porous **polybenzoxazole** films with good heat resistance and water absorption)



ACCESSION NUMBER: 2001:806194 CAPLUS  
 DOCUMENT NUMBER: 136:70209  
 TITLE: Synthesis and properties of novel cardo aromatic poly(ether-benzoxazole)s  
 AUTHOR(S): Hsiao, Sheng-Huei; He, Ming-Hsiang  
 CORPORATE SOURCE: Department of Chemical Engineering, Tatung University, Taipei, 104, Taiwan  
 SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2001), 39(22), 4014-4021  
 CODEN: JPACEC; ISSN: 0887-624X  
 PUBLISHER: John Wiley & Sons, Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB **Polybenzoxazoles** bearing ether and cardo groups were prepared by the low-temperature solution polycondensation of bis(ether-acyl chloride)s with three bis(aminophenol)s and subsequent thermal cyclodehydration of the resultant poly(o-hydroxy amide)s. 1,1-Bis[4-(4-chloroformylphenoxy)phenyl]cyclohexane, 5,5-bis[4-(4-chloroformylphenoxy)phenyl]-4,7-methanohexahydroindan, and 9,9-bis[4-(4-chloroformylphenoxy)phenyl]fluorene were used as monomers. The intermediate poly(o-hydroxy amide)s exhibited inherent viscosities in the range of 0.35-0.71 dL/g. All of the poly(o-hydroxy amide)s were amorphous and soluble in many organic polar solvents, and most of them could afford flexible and tough films by solvent casting. The poly(o-hydroxy amide)s exhibited glass-transition temps. (Tg's) in the range of 141-169°, and could be thermally converted into the corresponding **polybenzoxazoles** approx. in the region of 240-350°, as indicated by the DSC thermograms. Flexible and tough films of **polybenzoxazoles** could be obtained by thermal cyclodehydration of the poly(o-hydroxy amide) films. All the **polybenzoxazoles** were amorphous and showed higher Tg and dramatically decreased solubility as compared with their poly(o-hydroxy amide) precursors. They exhibited Tg's of 215-272° by DSC, and did not show significant weight loss until 500° in nitrogen or air.

IT 383435-06-1P 383435-12-9P 383435-18-5P  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and characterization of cardo polyether-polyamides and polyether-**polybenzoxazoles**)

RN 383435-06-1 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluorene-9-ylidene-1,4-phenyleneoxy-1,4-phenylenecarbonylimino(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)iminocarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

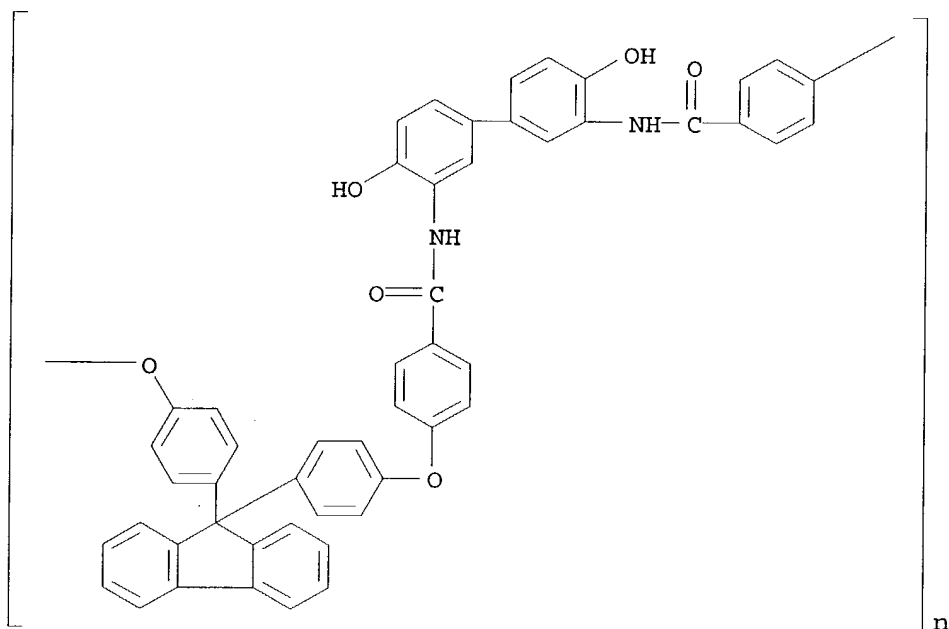
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 383435-12-9 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluorene-9-ylidene-1,4-phenyleneoxy-1,4-phenylenecarbonylimino(4,4'-dihydroxy[1,1'-biphenyl]-3,3'-

diyl)iminocarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 383435-18-5 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluorene-9-ylidene-1,4-phenyleneoxy-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

ST polyamide **polybenzoxazole** polyether cardo prepn property

IT Elongation, mechanical

Glass transition temperature

Tensile strength

Young's modulus

(of cardo polyether-polyamides and polyether-**polybenzoxazoles**)

IT Polyethers, preparation

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(polyamide-, cardo; preparation and characterization of cardo polyether-polyamides and polyether-**polybenzoxazoles**)

IT Polyethers, preparation

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP

- (Preparation); RACT (Reactant or reagent)  
 (polyamide-, fluorine-containing, cardo; preparation and characterization of  
 cardo polyether-polyamides and polyether-**polybenzoxazoles**)
- IT Fluoropolymers, preparation  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyether-, cardo; preparation and characterization of cardo  
 polyether-polyamides and polyether-**polybenzoxazoles**)
- IT Cardo polymers  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyethers, fluorine-containing; preparation and  
 characterization of  
 cardo polyether-polyamides and polyether-**polybenzoxazoles**)
- IT Cardo polymers  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polyamide-polyethers; preparation and characterization of cardo  
 polyether-polyamides and polyether-**polybenzoxazoles**)
- IT Polyethers, preparation  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazole-, cardo; preparation and characterization of cardo  
 polyether-polyamides and polyether-**polybenzoxazoles**)
- IT Polyethers, preparation  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazole-, fluorine-containing, cardo; preparation and  
 characterization of cardo polyether-polyamides and polyether-  
**polybenzoxazoles**)
- IT Fluoropolymers, preparation  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazole-polyether-, cardo; preparation and characterization of  
 cardo polyether-polyamides and polyether-**polybenzoxazoles**)
- IT Cardo polymers  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazole-polyethers, fluorine-containing; preparation and  
 characterization of cardo polyether-polyamides and polyether-  
**polybenzoxazoles**)
- IT Cardo polymers  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazole-polyethers; preparation and characterization of cardo  
 polyether-polyamides and polyether-**polybenzoxazoles**)
- IT **Polybenzoxazoles**  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazoles, polyether-, cardo; preparation and characterization  
 of cardo polyether-polyamides and polyether-**polybenzoxazoles**)
- IT **Polybenzoxazoles**  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (polybenzobisoxazoles, polyether-, fluorine-containing, cardo; preparation  
 and

characterization of cardo polyether-polyamides and polyether-  
polybenzoxazoles)

- IT Polyamides, preparation  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(polyether-, cardo; preparation and characterization of cardo polyether-polyamides and polyether-polybenzoxazoles)
- IT Polyamides, preparation  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(polyether-, fluorine-containing, cardo; preparation and characterization of cardo polyether-polyamides and polyether-polybenzoxazoles)
- IT 383434-99-9P 383435-00-5P 383435-02-7P 383435-03-8P 383435-05-0P  
383435-06-1P 383435-07-2P 383435-08-3P 383435-09-4P  
383435-10-7P 383435-11-8P 383435-12-9P 383435-13-0P  
383435-14-1P 383435-15-2P 383435-16-3P 383435-17-4P  
383435-18-5P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and characterization of cardo polyether-polyamides and polyether-polybenzoxazoles)
- IT 126296-90-0P 126296-92-2P 383435-19-6P 383435-20-9P 383435-21-0P  
383435-22-1P 383435-23-2P 383435-24-3P 383435-25-4P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and characterization of cardo polyether-polyamides and polyether-polybenzoxazoles)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 28 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:692107 CAPLUS

DOCUMENT NUMBER: 135:264551

TITLE: Positive-working photosensitive polyamide compositions  
having high sensitivity and **semiconductor**  
devices fabricated by using the same

INVENTOR(S): Kenmochi, Tomonori; Hirano, Takashi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001255654	A2	20010921	JP 2000-68097	20000313
PRIORITY APPLN. INFO.:			JP 2000-68097	20000313

AB The compns. contain 100 parts polyamides EC(O) [ [NHX(OH)2NHC(O)YC(O)]a [NHZN  
HC(O)YC(O)b] ]nNHX(OH)2NHC(O)E (X = tetravalent aromatic group; Y = divalent  
aromatic group; Z = R1SiR3R4OSer3R4R2; R1, R2 = divalent organic group; R3, R4  
= monovalent organic group; E = aliphatic, alicyclic, or cyclic compds.  
containing alkenyl and/or alkynyl; a = 60.0-100.0 mol%, b = 0-40.0 mol%, a + b = 100

mol%,  $n = 2-500$ ), 1-100 parts photosensitive diazoquinones, and 0.01-20 parts phenolic resins. The **compns.**, especially **photoresists**, give ultrafine patterns having good shapes by i-ray exposure for **semiconductor** devices. The compns. can also be used for interlayer dielec., cover coats for flexible Cu clad laminates, solder **resists**, liquid crystal alignment layers, etc.

IT 361347-08-2P 361347-09-3P

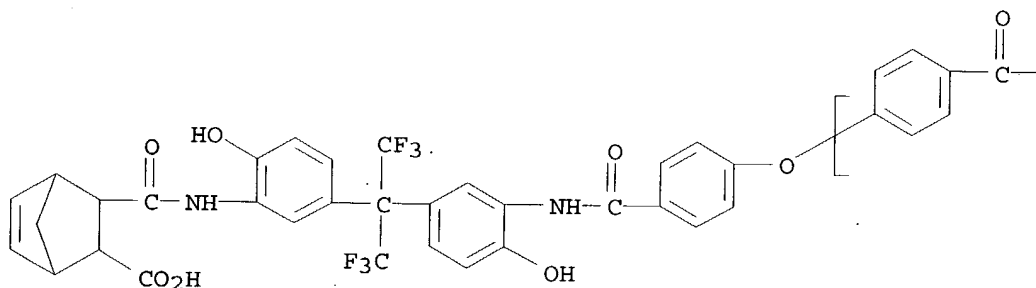
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamide-based pos. **photoresist compns.** containing diazoquinones and phenolic resins for **semiconductor** device manufacture)

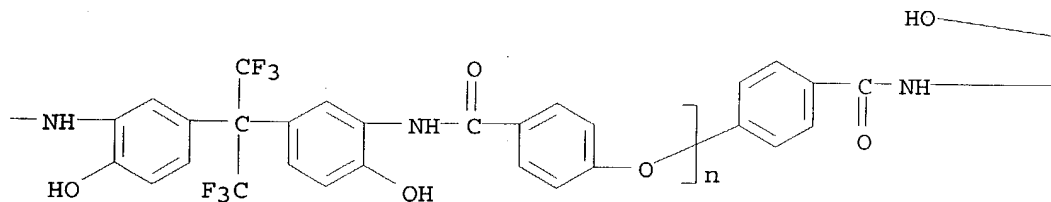
RN 361347-08-2 CAPLUS

CN Poly[oxy-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene) [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] (4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene],  $\alpha$ -[4-[[[5-[1-[3-[[3-carboxybicyclo[2.2.1]hept-5-en-2-yl]carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenyl]- $\omega$ -[4-[[[5-[1-[3-[[3-carboxybicyclo[2.2.1]hept-5-en-2-yl]carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenoxy] - (9CI)  
(CA INDEX NAME)

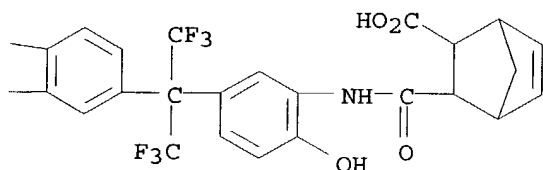
PAGE 1-A



PAGE 1-B



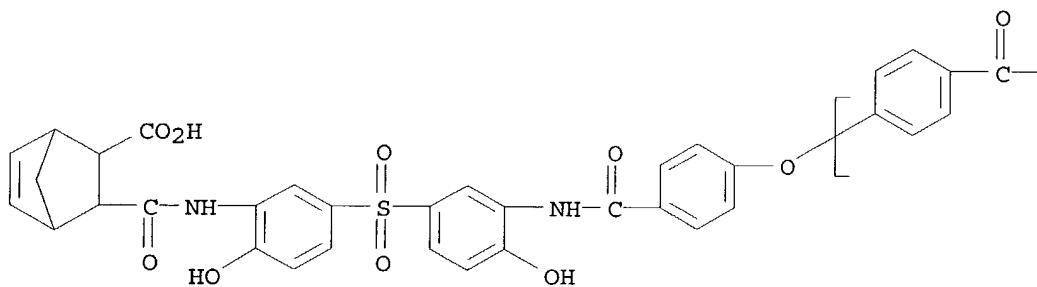
PAGE 1-C



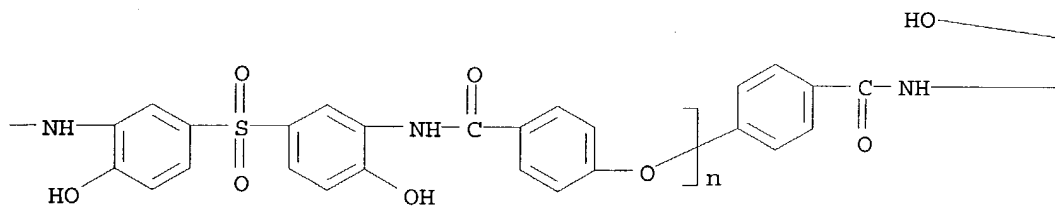
RN 361347-09-3 CAPLUS

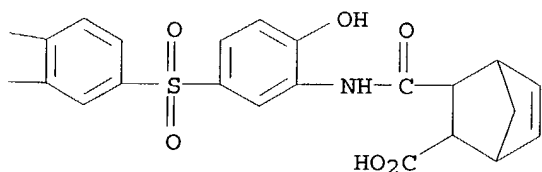
CN Poly[oxy-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)sulfonyl(4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene],  $\alpha$ -[4-[[[5-[[3-[[3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]sulfonyl]-2-hydroxyphenyl]amino]carbonyl]phenyl]- $\omega$ -[4-[[[5-[[3-[[3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]sulfonyl]-2-hydroxyphenyl]amino]carbonyl]phenoxy] - (9CI)  
(CA INDEX NAME)

PAGE 1-A



PAGE 1-B





- IC ICM G03F007-037  
ICS C08F002-48; C08F299-02; C08G069-26; C08K005-23; C08L077-06;  
G03F007-004; G03F007-022; H01L021-027; H01L021-312; H01L023-29;  
H01L023-31; C08L061-06
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 38, 76
- ST pos photoresist polyamide diazoquinone **semiconductor** device  
manuf; phenolic resin polyamide pos photoresist; polyimide precursor pos  
photoresist **semiconductor** manuf
- IT Positive **photoresists**  
**Semiconductor** device fabrication  
(polyamide-based pos. **photoresist compns.** containing  
diazoquinones and phenolic resins for **semiconductor** device  
manufacture)
- IT Phenolic resins, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material  
use); USES (Uses)  
(polyamide-based pos. **photoresist compns.** containing  
diazoquinones and phenolic resins for **semiconductor** device  
manufacture)
- IT Polyamic acids  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(polyamide-based pos. **photoresist compns.** containing  
diazoquinones and phenolic resins for **semiconductor** device  
manufacture)
- IT Polyamides, preparation  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(polyamide-based pos. **photoresist compns.** containing  
diazoquinones and phenolic resins for **semiconductor** device  
manufacture)
- IT Polyimides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polyamide-based pos. **photoresist compns.** containing  
diazoquinones and phenolic resins for **semiconductor** device  
manufacture)
- IT 137902-98-8  
RL: CAT (Catalyst use); USES (Uses)  
(polyamide-based pos. **photoresist compns.** containing  
diazoquinones and phenolic resins for **semiconductor** device  
manufacture)
- IT 9003-35-4 9008-61-1 9016-83-5 9039-25-2 361347-11-7  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material

use); USES (Uses)

(polyamide-based pos. **photoresist compns.** containing diazoquinones and phenolic resins for **semiconductor device** manufacture)

IT 826-62-0DP, 5-Norbornene-2,3-dicarboxylic anhydride, reaction products with polyamides 26041-86-1DP, 3,3'-Diamino-4,4'-dihydroxydiphenyl sulfone-diphenyl ether-4,4'-dicarboxylic acid copolymer, reaction products with 5-norbornene-2,3-dicarboxylic anhydride 112492-60-1DP, Diphenyl ether-4,4'-dicarboxylic acid-hexafluoro-2,2-bis(3-amino-4-hydroxyphenyl)propane copolymer, reaction products with 5-norbornene-2,3-dicarboxylic anhydride 123349-56-4DP, Isophthalic acid-hexafluoro-2,2-bis(3-amino-4-hydroxyphenyl)propane-terephthalic acid copolymer, reaction products with 5-norbornene-2,3-dicarboxylic anhydride 361347-08-2P 361347-09-3P 361347-10-6DP, reaction products with 5-norbornene-2,3-dicarboxylic anhydride 361380-98-5P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamide-based pos. **photoresist compns.** containing diazoquinones and phenolic resins for **semiconductor device** manufacture)

L154 ANSWER 29 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:676835 CAPLUS

DOCUMENT NUMBER: 135:242700

TITLE: **Polybenzoxazole precursors, polybenzoxazoles, and photoresist solutions** containing the precursors

INVENTOR(S): Hausmann, Joerg; Maier, Gerhard; Schmid, Guenter; Sezi, Recai

PATENT ASSIGNEE(S): Infineon Technologies A.-G., Germany

SOURCE: PCT Int. Appl., 37 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

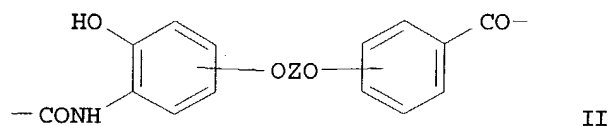
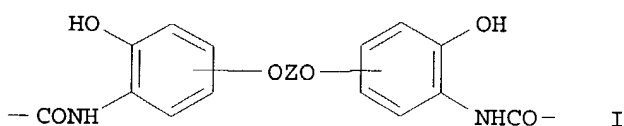
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001066619	A1	20010913	WO 2001-DE907	20010309
W: JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
DE 10011604	A1	20011004	DE 2000-10011604	20000310
EP 1189974	A1	20020327	EP 2001-931357	20010309
EP 1189974	B1	20030521		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2003525985	T2	20030902	JP 2001-565782	20010309
US 2002086968	A1	20020704	US 2001-8796	20011113
PRIORITY APPLN. INFO.:			DE 2000-10011604 A	20000310
			WO 2001-DE907 W	20010309

GI

*Applications*





AB The invention relates to **polybenzoxazole** precursors which are provided with one of the partial structures I or II (in which the rings may contain F, Me, CF<sub>3</sub>, OMe, or OCF<sub>3</sub> substituents and Z is an aromatic or heterocyclic connecting group). The precursors may be used in conjunction with diazo ketones in **photoresist solns.** for photoconversion to the cyclized **polybenzoxazoles**. An example was given for the production of 9,9-bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene-terephthaloyl chloride copolymer and its cyclization in the presence of the diester of bisphenol A with naphthoquinone diazide-5-sulfonic acid to give a high-temperature-stable resist.

IT 488838-66-0P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(**polybenzoxazole** precursor production and use for photoresists)

RN 488838-66-0 CAPLUS

CN Poly[oxy-1,4-phenylene-9H-fluorene-9-ylidene-1,4-phenyleneoxy(3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

IC ICM C08G073-22

ICS G03F007-038

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 24, 37, 74

ST **polybenzoxazole** precursor prodn photoresist

IT Polyamides, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(cardo; **polybenzoxazole** precursor production and use for photoresists)

IT Polyamides, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fluorine-containing, cardo; **polybenzoxazole** precursor production and

- use for photoresists)
- IT Fluoropolymers, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide-, cardo; **polybenzoxazole** precursor production and use for photoresists)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamides, fluorine-containing; **polybenzoxazole** precursor production and use for photoresists)
- IT Cardo polymers  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamides; **polybenzoxazole** precursor production and use for photoresists)
- IT Photoresists  
(**polybenzoxazole** precursor production and use for photoresists)
- IT **Polybenzoxazoles**  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole** precursor production and use for photoresists)
- IT 359820-18-1P 359820-19-2P 359820-20-5P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(monomer intermediate; **polybenzoxazole** precursor production and use for photoresists)
- IT 3236-71-3, 9,9-Bis(4-hydroxyphenyl)fluorene 129464-01-3 359820-21-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(monomer starting material; **polybenzoxazole** precursor production and use for photoresists)
- IT 359642-31-2P 359820-23-8P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; **polybenzoxazole** precursor production and use for photoresists)
- IT 38595-90-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(photoactive agent; **polybenzoxazole** precursor production and use for photoresists)
- IT **488838-66-0P**  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(**polybenzoxazole** precursor production and use for photoresists)
- IT 32109-45-8P, Poly(2,6-benzoxazolediyl) 359862-18-3P 359862-20-7P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**polybenzoxazole** precursor production and use for photoresists)
- REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 30 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:632157 CAPLUS

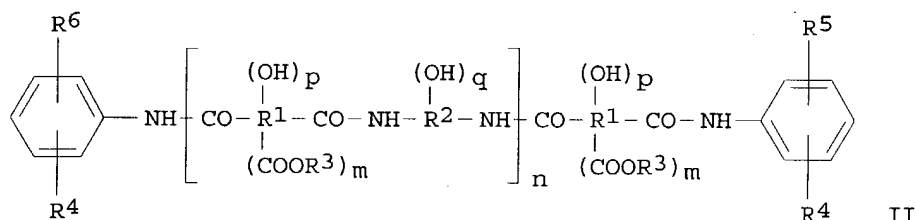
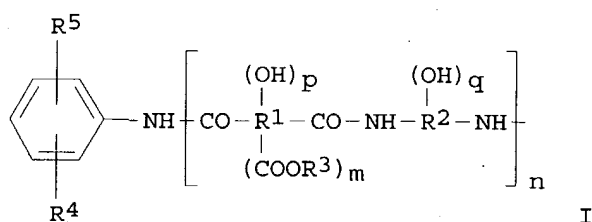
DOCUMENT NUMBER: 135:203005

TITLE: Positive-working photosensitive resin precursor

composition  
 INVENTOR(S): Suwa, Atsushi; Fujita, Yoji; Tomikawa, Masao  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001235860	A2	20010831	JP 2000-182706	20000619
JP 3460679	B2	20031027		

PRIORITY APPLN. INFO.: JP 1999-358651 A 19991217  
 GI



AB The composition comprises (a) a polymer having structural units I and/or II ( $R_1$  = 2- to 8-valent  $C_{\geq 2}$  group;  $R_2$  = 2- to 6-valent  $C_{\geq 2}$  group;  $R_3$  = H, OH, C1-20 organic group;  $R_4$  = H, OH, C1-10 hydrocarbyl;  $R_5$  = C1-10 hydrocarbon with  $\geq 1$  unsatd. group; nitro, methylol, ester, hydroxyalkyl;  $n$  = 10-100,000;  $m$  = 0-2;  $p, q$  = 0-4;  $p + q > 0$ ), (b) a compound having phenolic OH groups, and (c) an esterified quinonediazide compound. The UV exposed part of the polyimide precursor is developable with aqueous alkali solution and the composition is useful for protective film and insulating layer of **semiconductor** elements.

IT 236095-20-8DP, reaction products with 4-allylaniline  
 264604-36-6DP, reaction products with 4-ethynylaniline  
 357275-38-8P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working photosensitive resin composition containing polyimide precursor,

phenolic compound, and esterified quinonediazide)

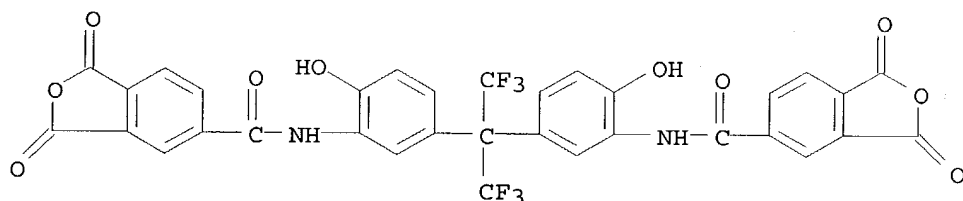
RN 236095-20-8 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

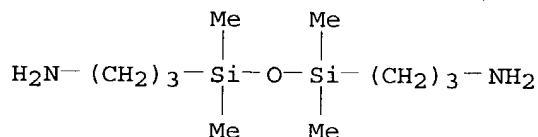
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CRN 2469-55-8

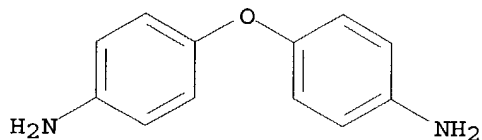
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



RN 264604-36-6 CAPLUS

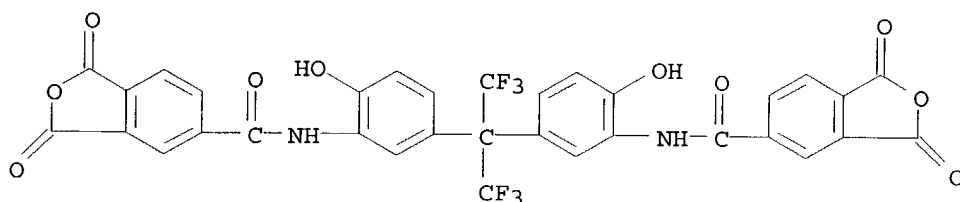
CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[4-

aminobenzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

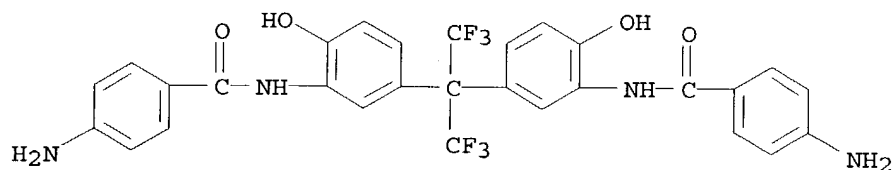
CMF C33 H16 F6 N2 O10



CM 2

CRN 129197-38-2

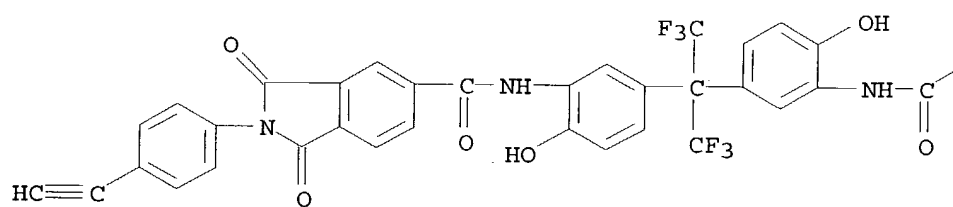
CMF C29 H22 F6 N4 O4



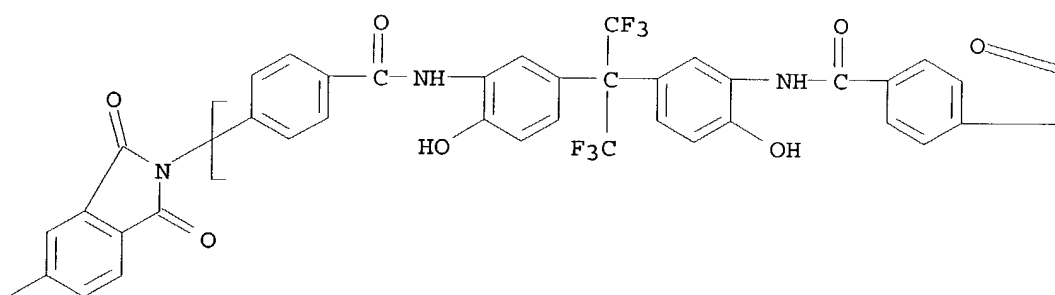
RN 357275-38-8 CAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene],  $\alpha$ -(4-ethynylphenyl)- $\omega$ -[5-[[[5-[1-[3-[[[2-(4-ethynylphenyl)-2,3-dihydro-1,3-dioxo-1H-isoindol-5-yl]carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]-1,3-dihydro-1,3-dioxo-2H-isoindol-2-yl]-(9CI) (CA INDEX NAME)

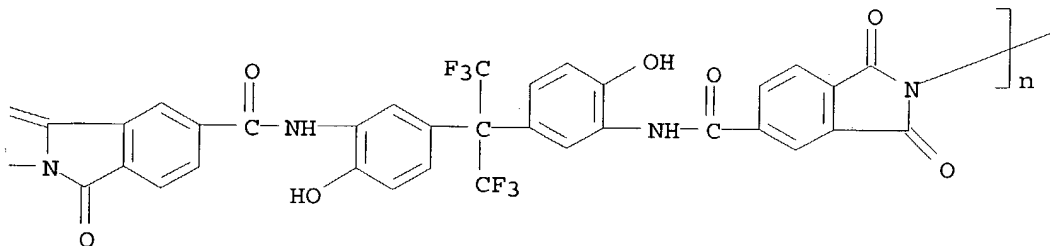
PAGE 1-A



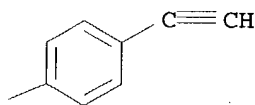
PAGE 1-B



PAGE 1-C



PAGE 1-D

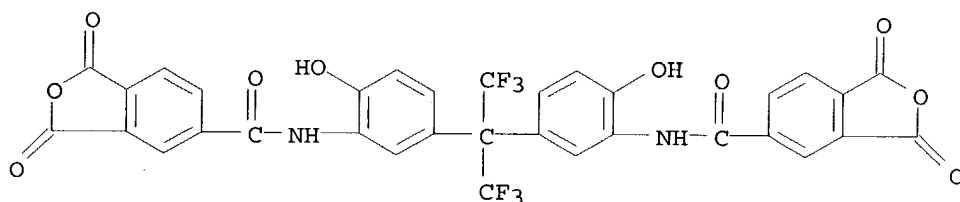


IT 223255-30-9P

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (preparation and polymerization of)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM G03F007-037

ICS C08G073-14; C08K005-13; C08K005-28; C08L079-08; G03F007-004;  
 G03F007-022; H01L021-027; H01L021-312

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38

ST polyimide terminated pos photoresist; phenolic compd photoresist;  
 quinonediazide ester photoresist

IT Positive photoresists

(pos.-working photosensitive resin composition containing polyimide  
 precursor, phenolic compound, and esterified quinonediazide)

IT Polyimides, preparation

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material)

use); PREP (Preparation); USES (Uses)

(pos.-working photosensitive resin composition containing polyimide precursor,

phenolic compound, and esterified quinonediazide)

IT 93933-64-3

RL: TEM (Technical or engineered material use); USES (Uses)

(BIR PC; pos.-working photosensitive resin composition containing polyimide precursor, phenolic compound, and esterified quinonediazide)

IT 151319-83-4

RL: TEM (Technical or engineered material use); USES (Uses)

(Bis RS 2P; pos.-working photosensitive resin composition containing polyimide

precursor, phenolic compound, and esterified quinonediazide)

IT 99-09-2DP, 3-Nitroaniline, reaction products with polyimide 930-37-0DP,

Glycidyl methyl ether, reaction products with polyimide 1520-21-4DP,

4-Vinylaniline, reaction products with polyimide 14235-81-5DP,

4-Ethynylaniline, reaction products with polyimide 32704-23-7DP,

4-Allylaniline, reaction products with polyimide 37829-64-4P

38595-90-3P 58886-62-7P 69088-96-6DP, 4-(3-Aminophenyl)-2-methyl-3-butyn-2-ol, reaction products with polyimide 151598-18-4P

**236095-20-8DP**, reaction products with 4-allylaniline

261373-50-6DP, reaction products with 4-vinylaniline **264604-36-6DP**

, reaction products with 4-ethynylaniline 281653-60-9DP, reaction

products with 4-allylaniline and glycidyl Me ether **357275-38-8P**

357275-39-9DP, reaction products with 3-nitroaniline and glycidyl Me ether

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working photosensitive resin composition containing polyimide precursor,

phenolic compound, and esterified quinonediazide)

IT 843-55-0, Bis-Z 110726-28-8, Tris P PA

RL: TEM (Technical or engineered material use); USES (Uses)

(pos.-working photosensitive resin composition containing polyimide precursor,

phenolic compound, and esterified quinonediazide)

IT 25596-69-4P 27431-43-2P 220426-92-6P **223255-30-9P**

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(preparation and polymerization of)

IT 80-05-7, Bisphenol A, reactions 99-89-8, 4-Isopropylphenol 135-19-3,

2-Naphthol, reactions 3770-97-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of esterified quinonediazide compound)

IT 99-63-8, Isophthalic acid chloride

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with amine compound)

IT 122-04-3, 4-Nitrobenzoyl chloride 552-30-7, Trimellitic anhydride

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with diamine compound)

IT 99-57-0, 2-Amino-4-nitrophenol

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with isophthalic acid chloride)

IT 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with trimellitic anhydride)



L154 ANSWER 31 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:129745 CAPLUS

DOCUMENT NUMBER: 134:179659

TITLE: Heat-resistant resin compositions  
with improved adhesion with substrates

INVENTOR(S): Okuda, Yoshiharu; Tomikawa, Masao; Fujita, Yoji

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001049119	A2	20010220	JP 1999-227814	19990811

PRIORITY APPLN. INFO.: JP 1999-227814 19990811

AB The comps. useful for interlayer insulating films and surface protective films for **semiconductor** devices contain heat-resistant resins or their precursors, solvents, and 1-10% (based on the resins) silicone diamines. Thus, stirring 4,4'-diaminodiphenyl ether 19.0, 1,3-bis(3-aminopropyl)tetramethyldisiloxane (I) 1.2, pyromellitic anhydride 10.9, and 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride 15.0 g in NMP gave a polyamic acid, which was mixed with N,N-dimethylaminoethyl methacrylamide 26, ethylene glycol dimethacrylate 5, N-phenylglycine 2.5, 3,3'-carbonylbis(7-diethylaminocoumarin) 0.2, and I 0.9 g to give a photosensitive varnish. The varnish was applied on a silicone wafer and cured to give a film showing no peeling after heating.

IT 236095-20-8P  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(heat-resistant resin comps. with good adhesion for **semiconductor** devices)

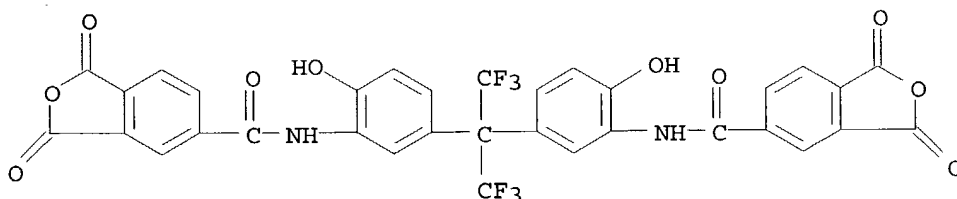
RN 236095-20-8 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

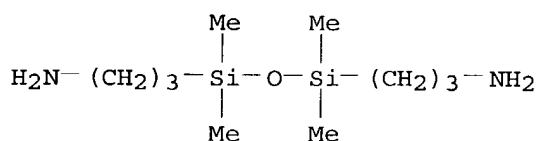
CMF C33 H16 F6 N2 O10



CM 2

CRN 2469-55-8

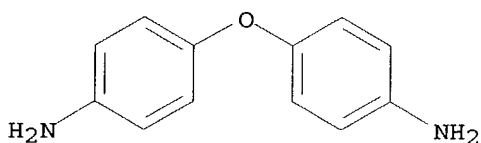
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



IC ICM C08L079-08

ICS C08K005-544; G03F007-022; G03F007-037; H01L021-312

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST polyimide precursor polyamic acid heat resistance; adhesion improver  
siloxane diamine polyimide; elec insulator heat resistance polyimide;  
photosensitive heat resistance resin; **semiconductor** heat  
resistance interlayer insulating film

IT Heat-resistant materials

(films; heat-resistant resin compns. with good  
adhesion for **semiconductor** devices)

IT Adhesion promoters

Electric insulators

Heat-resistant materials

**Semiconductor** devices

(heat-resistant resin compns. with good adhesion  
for **semiconductor** devices)

IT **Polybenzoxazoles**

Polyimides, uses

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)

(heat-resistant resin compns. with good adhesion  
for **semiconductor** devices)

IT Polyamic acids

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)

- (heat-resistant resin compns. with good adhesion for semiconductor devices)
- IT Films  
(heat-resistant; heat-resistant resin compns. with good adhesion for semiconductor devices)
- IT Polyamides, preparation  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyhydroxy-; heat-resistant resin compns. with good adhesion for semiconductor devices)
- IT 98-59-9DP, p-Toluenesulfonyl chloride, reaction products with 1,3-bis(3-aminopropyl)tetramethyldisiloxane 110-16-7DP, Maleic acid, reaction products with 1,3-bis(3-aminopropyl)tetramethyldisiloxane 2469-55-8DP, 1,3-Bis(3-aminopropyl)tetramethyldisiloxane, reaction products with toluenesulfonyl chloride  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)  
(heat-resistant resin compns. with good adhesion for semiconductor devices)
- IT 211873-94-8P 236095-20-8P 326595-30-6P 326595-31-7P 326595-32-8P 326595-33-9P 326595-34-0P  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(heat-resistant resin compns. with good adhesion for semiconductor devices)
- IT 2469-55-8, 1,3-Bis(3-aminopropyl)tetramethyldisiloxane  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat-resistant resin compns. with good adhesion for semiconductor devices)
- IT 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(heat-resistant resin compns. with good adhesion for semiconductor devices)

L154 ANSWER 32 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:835217 CAPLUS

DOCUMENT NUMBER: 134:23499

TITLE: Heating of patterned heat-resistant resin composition film

INVENTOR(S): Okuda, Ryoji; Tomikawa, Masao; Fujita, Yoji

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000327775	A2	20001128	JP 1999-137155	19990518
PRIORITY APPLN. INFO.:			JP 1999-137155	19990518

AB The pattern of the composition containing a polymer based on structural repeating unit [COR1(OH)p(CO2R3)nCONHR2(OH)qNH]m (R1 = C<sub>≥2</sub> 3-8-valent organic

group; R2 = C<sub>≥2</sub> 2-6-valent organic group; R3 = H, alkali metal ion, ammonium ion, C1-20 organic group; m = 3-100,000; n = 0-2; p, q = 0-4; n + q > 0) is heated at (T ± 10)° (T = m.p. of solvents contained in the polymer under 1 atm) for ≥10 min. The composition contains the polymer and a photosensitive acid-generating agent. The edge of the pattern shows retention of rectangular shape, due to the heating, in posttreatment. The process is suitable in formation of intermediate elec. insulator film in **semiconductor** devices, etc.

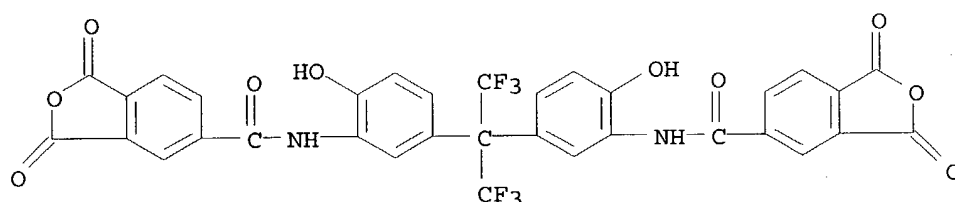
IT 223255-30-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(heating of heat-resistant polymer composition film from)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IT 231963-06-7P 261373-47-1P

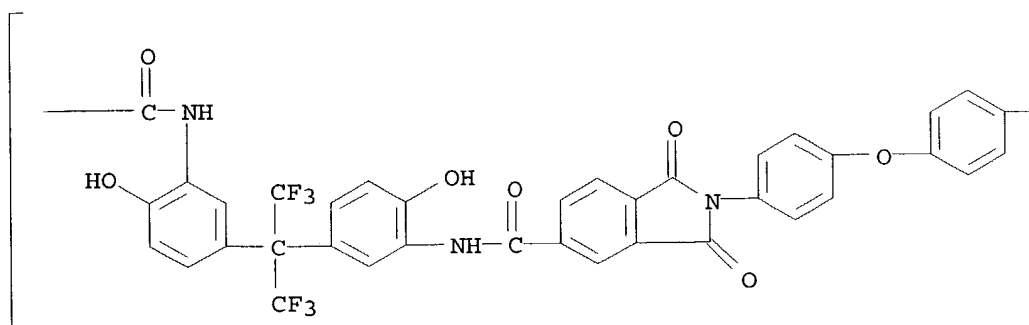
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge)

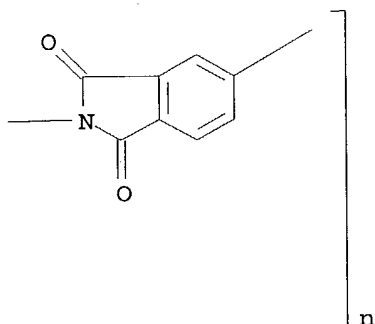
RN 231963-06-7 CAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonylimino(6-hydroxy-1,3-phenylene) [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] (4-hydroxy-1,3-phenylene)iminocarbonyl] (9CI) (CA INDEX NAME)

PAGE 1-A



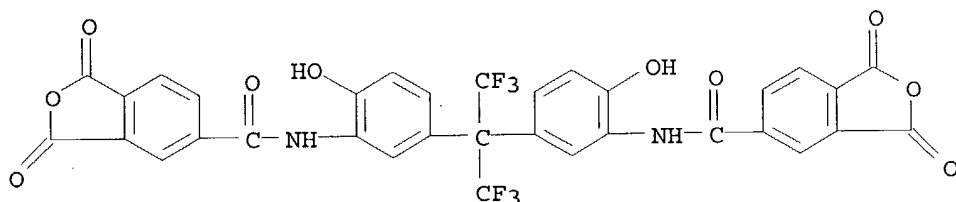
PAGE 1-B



RN 261373-47-1 CAPLUS  
 CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

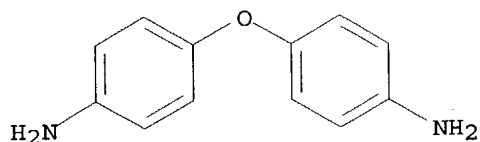
CM 1

CRN 223255-30-9  
 CMF C33 H16 F6 N2 O10



CM 2

CRN 101-80-4  
 CMF C12 H12 N2 O



IC ICM C08G069-26  
 ICS C08G073-10; C08J007-00; C08L077-06; C08L079-08; G03F007-11;  
 H01L021-027  
 CC 74-4 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 76

- ST heating heat resistant photolithog film pattern; edge shape rectangular retention photolithog pattern; **semiconductor** device elec insulator film photolithog
- IT Heat-resistant materials  
Heating  
Photolithography  
(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge)
- IT Polyamic acids  
**Polybenzoxazoles**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge)
- IT **Semiconductor** device fabrication  
(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge for)
- IT 220426-92-6P **223255-30-9P**  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(heating of heat-resistant polymer composition film from)
- IT 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(heating of heat-resistant polymer composition film from)
- IT 84329-58-8P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-pyromellitic dianhydride copolymer 106709-71-1P 112492-59-8P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthaloyl dichloride copolymer 113339-21-2P **231963-06-7P** 232589-14-9P 251904-83-3P **261373-47-1P** 261503-45-1P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge)
- IT 96-48-0,  $\gamma$ -Butyrolactone 127-19-5, Dimethylacetamide 872-50-4, N-Methyl-2-pyrrolidone, processes  
RL: NUU (Other use, unclassified); REM (Removal or disposal); PROC (Process); USES (Uses)  
(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge)
- IT 97-90-5, Ethylene glycol dimethacrylate 103-01-5, N-Phenylglycine 120-07-0, N-Phenyldiethanolamine 13081-44-2, N,N-Dimethylaminoethylmethacrylamide 15625-89-5, Trimethylolpropane triacrylate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(heating of heat-resistant polymer composition film photolithog. pattern for keeping shape of edge)

L154 ANSWER 33 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

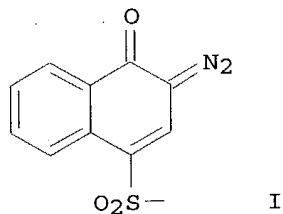
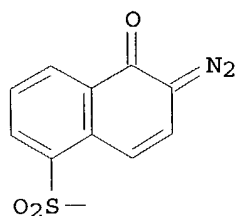
ACCESSION NUMBER: 2000:749073 CAPLUS

DOCUMENT NUMBER: 133:327663

TITLE: Positive-working photosensitive resin precursor composition

INVENTOR(S): Fujita, Yoji; Tomikawa, Masao; Okuda, Ryoji  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000298341	A2	20001024	JP 1999-106855	19990414
PRIORITY APPLN. INFO.: GI			JP 1999-106855	19990414



AB The title composition contains (a) a polymer based on a structural unit [COR1(OH)p(CO2R3)mCONHR2(OH)qNH]n (R1 = C<sub>≥</sub>2 organic group with 2 to 8 valences; R2 = C<sub>≥</sub>2 organic group with 2 to 6 valences; R3 = H and/or C1-20 organic group; n = 10-100,000; m = 0-2; p, q = 0-4, p ≠ q ≠ 0) and (b) ≥1 quinonediazide compound (R4SO2NH)cR5(OQ)b(NHQ)e(OSO2R6)d [Q = I or II; R4, R6 = C1-20 univalent organic group; R5 = C<sub>≥</sub>2 organic group with 2 to 8 valences; b + d, c + e = 0-4, b ≠ e ≠ 0, c ≠ d ≠, (b + d) ≠ (c + e) ≠ 0]. The composition is developable with aqueous alkali solns. and provides high quality patterns with high residual film rate.

IT 236095-20-8P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos. photoresist composition containing polyimide or polybenzoxazole precursor and quinonediazide compound)

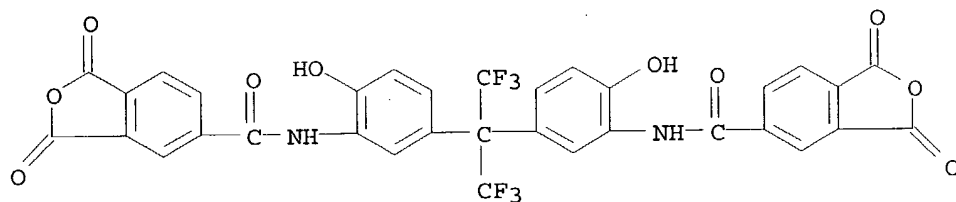
RN 236095-20-8 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

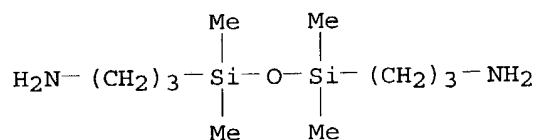
CMF C33 H16 F6 N2 O10



CM 2

CRN 2469-55-8

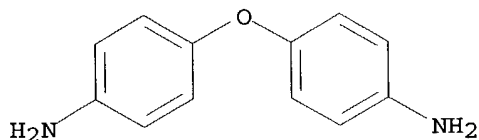
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4

CMF C12 H12 N2 O



IT 223255-30-9P

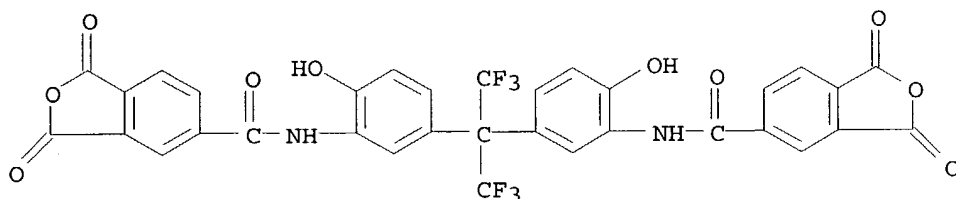
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
 RACT (Reactant or reagent)

(preparation and polymerization of)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)





- IC ICM G03F007-037  
ICS C08G069-26; G03F007-022
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38
- ST pos photoresist polyimide **polybenzoxazole** precursor;  
quinonediazide compd pos photoresist
- IT **Positive photoresists**  
(pos. **photoresist composition** containing polyimide or **polybenzoxazole** precursor and quinonediazide compound)
- IT **Polybenzoxazoles**  
Polyimides, preparation  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos. **photoresist composition** containing polyimide or **polybenzoxazole** precursor and quinonediazide compound)
- IT 98-59-9, p-Toluenesulfonic acid chloride 36451-09-9,  
1,2-Naphthoquinonediazide-4-sulfonyl chloride 38638-43-6,  
1,2-Naphthoquinonediazide-5-sulfonic acid chloride 52499-14-6,  
p-Dodecylbenzenesulfonyl chloride 110726-28-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of)
- IT 83558-87-6DP, 2,2-Bis(3-amino-4-hydroxyphenyl) hexafluoropropane, reaction products with 1,2-naphthoquinonediazide-4(5)-sulfonic acid and p-toluenesulfonic acid 148879-74-7P **236095-20-8P**  
270903-11-2P 302792-34-3P 302792-35-4P 302792-37-6P 302792-38-7P  
302798-02-3P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos. **photoresist composition** containing polyimide or **polybenzoxazole** precursor and quinonediazide compound)
- IT 25596-69-4P 46907-17-9P 129197-38-2P **223255-30-9P**  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and polymerization of)
- IT 1204-28-0, Trimellitic acid anhydride chloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of acid anhydride)
- IT 99-57-0, 2-Amino-4-nitrophenol 99-63-8, 1,3-Benzenedicarbonyl dichloride 122-04-3, 4-Nitrobenzoyl chloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of diamine compound)

DOCUMENT NUMBER: 133:96784  
 TITLE: Photosensitive resin precursor composition  
 INVENTOR(S): Tomikawa, Masao; Okuda, Ryoji; Fujita, Yoji  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000187317	A2	20000704	JP 1999-285482	19991006
PRIORITY APPLN. INFO.:			JP 1998-290480	A 19981013
OTHER SOURCE(S):		MARPAT 133:96784		
GI				

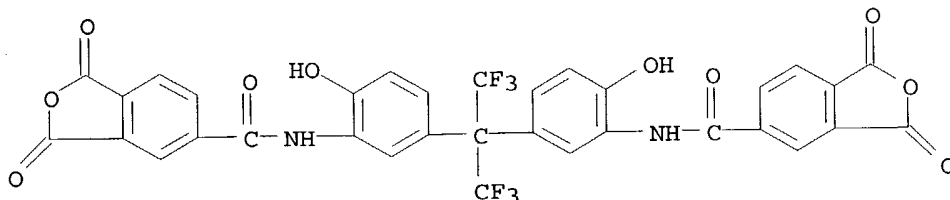
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The title resin precursor composition contains (a) a polymer based on as structural unit of the formula  $[\text{COR}_1(\text{OH})_p(\text{CO}_2\text{R}_3)_m\text{CONHR}_2(\text{OH})_q\text{NH}]_n$  ( $\text{R}_1 = \text{C}_{\geq 2}$  organic group with 3 to 8 valences;  $\text{R}_2 = \text{C}_{\geq 2}$  organic group with 2 to 6 valences;  $\text{R}_3 = \text{H}$ ,  $\text{C}_{1-10}$  organic group;  $n = 10-100,000$ ;  $m = 1$  or  $2$ ;  $p, q = 0-4$ ,  $p \neq q \neq 0$ ) and (b)  $\geq 1$  quinonediazide compound selected from I-IV ( $\text{Q} = \text{H}, \text{V}, \text{VI}$ , all  $\text{Q}$  groups are not  $\text{H}$  at the same in the each compd;  $x = 0-2$ ). The pos.-working photosensitive polyimide precursor composition shows improved alkali-developability and is especially suitable for semiconductor device fabrication.

IT 223255-30-9DP, polymers with aminophenyl ether and aminopropylmethoxysiloxane  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (photosensitive resin precursor composition containing polyimides and quinonediazide compds.)

RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide,  $\text{N}, \text{N}'$ -[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM G03F007-022

ICS C08K005-42; C08L077-06; C08L079-08; G03F007-037; H01L021-027

- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76
- ST photoresist polyimide quinonediazide **semiconductor** device fabrication
- IT **Photoresists**  
**Semiconductor** device fabrication  
(photosensitive resin precursor **composition** containing polyimides and quinonediazide compds.)
- IT Polyimides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(photosensitive resin precursor composition containing polyimides and quinonediazide compds.)
- IT 101-80-4DP, 4,4'-Diaminophenyl ether, polymers with aminopropylmethylsiloxane and hydroxy-containing acid anhydride 108-31-6DP, Maleic anhydride, polymers with hydroxy-containing acid anhydride and diamine compds. and aminopropylmethylsiloxane 930-37-0DP, Glycidylmethyl ether, polymers with hydroxy-containing acid anhydride and diamines and aminopropylmethylsiloxane 1188-33-6DP, N,N-Dimethylformamide diethylacetal, polymers with hydroxy-containing acid anhydride and diamine compds. and aminopropylmethylsiloxane 1823-59-2DP, polymers with hydroxy-containing diamine compds. and aminopropylmethylsiloxane 2420-87-3DP, 3,3',4,4'-Biphenyltetracarboxylic acid anhydride, polymers with hydroxy-containing acid anhydride and diamines and aminopropylmethylsiloxane 2469-55-8DP, 1,3-Bis(3-aminopropyl)tetramethyldisiloxane, polymers with aminophenyl ether and hydroxy-containing acid anhydride 25596-69-4DP, polymers with aminopropylmethylsiloxane and acid anhydride 27431-43-2DP, polymers with hydroxy-containing acid anhydride and aminopropylmethylsiloxane 129197-38-2DP, polymers with hydroxy-containing acid anhydride **223255-30-9DP**, polymers with aminophenyl ether and aminopropylmethylsiloxane 280555-59-1P 280555-60-4P 280555-61-5P 280555-62-6P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(photosensitive resin precursor composition containing polyimides and quinonediazide compds.)
- IT 75-56-9, reactions 99-57-0, 2-Amino-4-nitrophenol 99-63-8, 1,3-Benzenedicarbonyl dichloride 106-92-3, Allylglycidyl ether 121-90-4, 3-Nitrobenzoyl chloride 122-04-3, 4-Nitrobenzoyl chloride 3867-55-8, Trimellitic acid chloride 83558-87-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of; in preparation of polyimides for photosensitive resin precursor composition)
- IT 3770-97-6 7727-33-5 36451-09-9 51866-54-7 280555-63-7 280555-64-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of; in preparation of quinonediazide compds. for photosensitive resin precursor composition)

L154 ANSWER 35 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

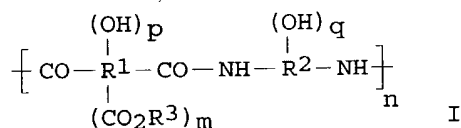
ACCESSION NUMBER: 2000:89548 CAPLUS

DOCUMENT NUMBER: 132:144416

TITLE: Alkaline-developable photosensitive heat-resistant polymer precursor

composition  
 INVENTOR(S): Tomikawa, Masao; Yoshida, Naoyo; Okuda, Ryoji  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000039714	A2	20000208	JP 1999-128166	19990510
JP 3514167	B2	20040331		
PRIORITY APPLN. INFO.:			JP 1998-131765	A 19980514
GI				



AB The title composition comprises (a) polymer comprising a structuring repeating unit of I (R1 = 2- to 8-valent organic group having  $\geq 2$  carbons; R2 = 2- to 6-valent organic group containing  $\geq 2$  carbons; R3 = H, organic group containing 1-20 carbons; n = 10-100,000; m = 0, 1, 2; p, q = 0-4; m + p + q  $\geq 1$ ), (b) quinonediazide compound, and (c) hardening agent. The hardening agent may be epoxy resin or metal (Ti, Al, or Zr) chelate compound

IT 257280-01-6P 257280-03-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (in alkaline-developable photosensitive heat-resistant polymer precursor composition)

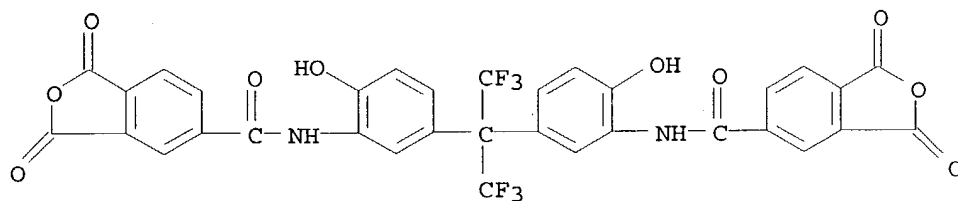
RN 257280-01-6 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] and N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[3-aminobenzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

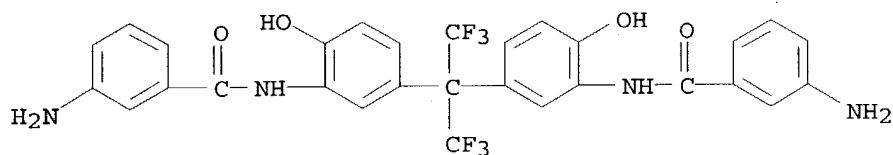
CMF C33 H16 F6 N2 O10



CM 2

CRN 220426-92-6

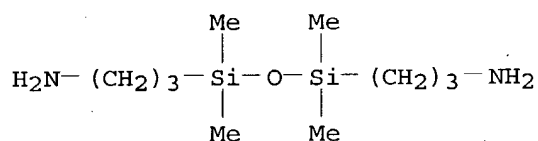
CMF C29 H22 F6 N4 O4



CM 3

CRN 2469-55-8

CMF C10 H28 N2 O Si2



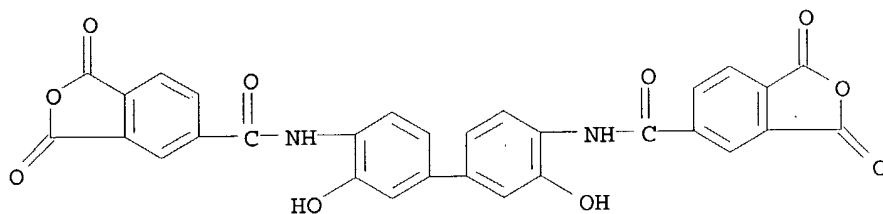
RN 257280-03-8 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)bis[1,3-dihydro-1,3-dioxo-, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 22452-77-3

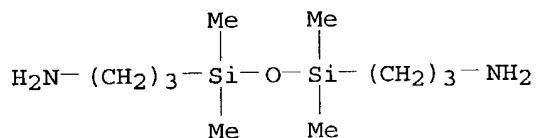
CMF C30 H16 N2 O10



CM 2

CRN 2469-55-8

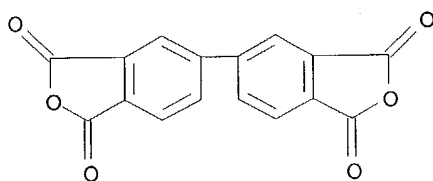
CMF C10 H28 N2 O Si2



CM 3

CRN 2420-87-3

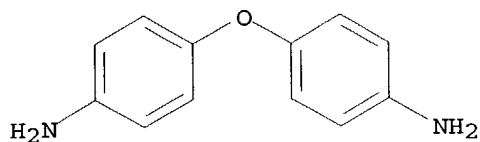
CMF C16 H6 O6



CM 4

CRN 101-80-4

CMF C12 H12 N2 O



IT 22452-77-3P 223255-30-9P

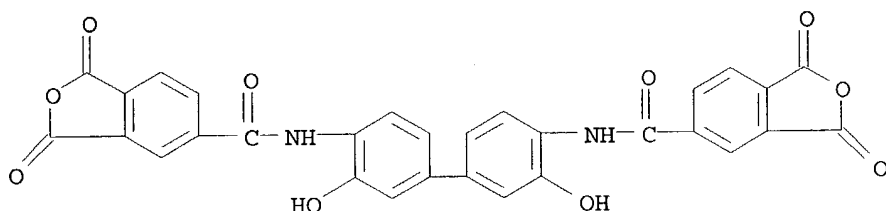
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or

engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)

(preparation of OH-group containing acid anhydride)

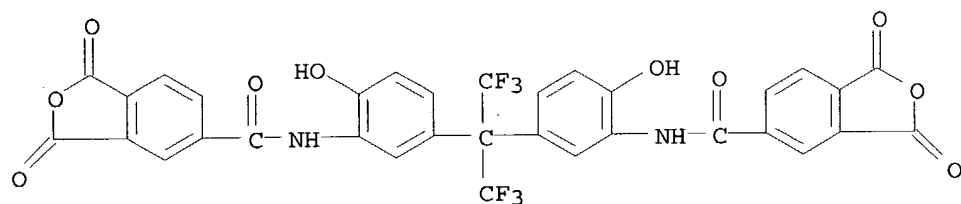
RN 22452-77-3 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-  
diyl)bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM G03F007-037

ICS C08K005-28; C09D005-00; G03F007-022; H01L021-027; H01L021-312;  
H01L023-29; H01L023-31; C08L079-08; C09D179-04; C09D179-08;  
C08L063-00

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 38, 42, 76

ST alk developable photosensitive heat **resistant** polymer precursor  
**compn**; **semiconductor** buffer coating insulator pos  
working polyimide photoresist

IT Heat-resistant materials

Positive photoresists

**Semiconductor** device fabrication

(alkaline-developable photosensitive heat-**resistant** polymer  
precursor **composition**)

IT Electric insulators

(coatings; alkaline-developable photosensitive heat-**resistant**  
polymer precursor **composition**)

IT Coating materials

(light-sensitive; alkaline-developable photosensitive heat-  
**resistant** polymer precursor **composition**)

IT Polyimides, preparation

Polyimides, preparation

Polyimides, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-, fluorine-containing; alkaline-developable photosensitive

heat-

**resistant polymer precursor composition)**

IT Polyimides, preparation

Polyimides, preparation

Polyimides, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polyether-; alkaline-developable photosensitive heat-

**resistant polymer precursor composition)**

IT Fluoropolymers, preparation

Polyethers, preparation

Polyethers, preparation

Polyethers, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyamic acid-polyimide-; alkaline-developable photosensitive heat-

**resistant polymer precursor composition)**

IT Polysiloxanes, preparation

Polysiloxanes, preparation

Polysiloxanes, preparation

Polysiloxanes, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-polyimide-, fluorine-containing; alkaline-developable

photosensitive

**heat-resistant polymer precursor composition)**

IT Polyamic acids

Polyamic acids

Polyamic acids

Polysiloxanes, preparation

Polysiloxanes, preparation

Polysiloxanes, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-polyimide-; alkaline-developable photosensitive heat-

**resistant polymer precursor composition)**

IT Fluoropolymers, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-polyimide-siloxane-; alkaline-developable photosensitive heat-

**resistant polymer precursor composition)**

IT Polyimides, preparation

Polyimides, preparation

Polyimides, preparation

Polyimides, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyether-siloxane-, fluorine-containing; alkaline-developable

photosensitive

**heat-resistant polymer precursor composition)**

IT Polyimides, preparation



- Polyimides, preparation  
Polyimides, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-siloxane-; alkaline-developable photosensitive heat-resistant polymer precursor composition)
- IT Polyamic acids  
Polyamic acids  
Polyamic acids  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-, fluorine-containing; alkaline-developable photosensitive heat-resistant polymer precursor composition)
- IT Polyethers, preparation  
Polyethers, preparation  
Polyethers, preparation  
Polyethers, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-siloxane-, fluorine-containing; alkaline-developable photosensitive heat-resistant polymer precursor composition)
- IT Polyethers, preparation  
Polyethers, preparation  
Polyethers, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-siloxane-; alkaline-developable photosensitive heat-resistant polymer precursor composition)
- IT 25085-92-1P, 4,4'-Diaminodiphenyl ether-benzophenonetetracarboxylic dianhydride-pyromellitic anhydride copolymer 223449-04-5P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-trimellitic anhydride copolymer 257280-01-6P 257280-03-8P 257280-04-9P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-4,4'-dicarboxydiphenyl ether chloride-isophthalic acid chloride copolymer  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(in alkaline-developable photosensitive heat-resistant polymer precursor composition)
- IT 13963-57-0 14354-59-7, Aluminum tris(trifluoroacetylacetonate) 14592-89-3, Chromium (III) trifluoroacetylacetonate 17501-44-9, Zirconium (IV) acetylacetonate 17501-79-0, Titanium (IV) acetylacetonate 25068-38-6, Epikote 828 257280-02-7  
RL: TEM (Technical or engineered material use); USES (Uses)  
(in alkaline-developable photosensitive heat-resistant polymer precursor composition)
- IT 1204-28-0 4363-03-5, 3-Hydroxy-4-aminobiphenyl 83558-87-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of OH-group containing acid anhydride)
- IT 22452-77-3P 223255-30-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(preparation of OH-group containing acid anhydride)

IT 99-57-0, 2-Amino-4-nitrophenol 121-90-4, 3-Nitrobenzoic acid chloride  
122-04-3, 4-Nitrobenzoylchloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of OH-group containing diamine compound)  
IT 46907-17-9P 220426-92-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or  
engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)  
(preparation of OH-group containing diamine compound)

LI54 ANSWER 36 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:519539 CAPLUS

DOCUMENT NUMBER: 131:151779

TITLE: Positive photosensitive composition, positive  
photosensitive lithographic plate and method for  
forming positive image

INVENTOR(S): Urano, Toshiyuki; Murata, Akihisa; Hino, Etsuko

PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan

SOURCE: Eur. Pat. Appl., 52 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 934822	A1	19990811	EP 1999-102099	19990202
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11288089	A2	19991019	JP 1999-23515	19990201
US 6200727	B1	20010313	US 1999-244206	19990204
PRIORITY APPLN. INFO.:			JP 1998-23103	A 19980204
			JP 1998-23104	A 19980204

AB This invention relates to a pos. photosensitive composition useful for a  
lithog. plate, a color proof for print correction, a color filter  
**resist** for **liquid** crystal display, a **resist** for  
integrated circuits for **semiconductor** elements, or a copper  
etching resist to be used for a printed wiring board or gravure  
plate-making, and further relates to a photosensitive lithog. plate and a  
method for forming a pos. image. The pos. photosensitive composition, which  
contains no quinonediazide compound, comprises an alkali-soluble resin having  
phenolic hydroxyl groups, of which at least some are esterified, and a  
photothermal conversion material.

IT 235745-93-4P

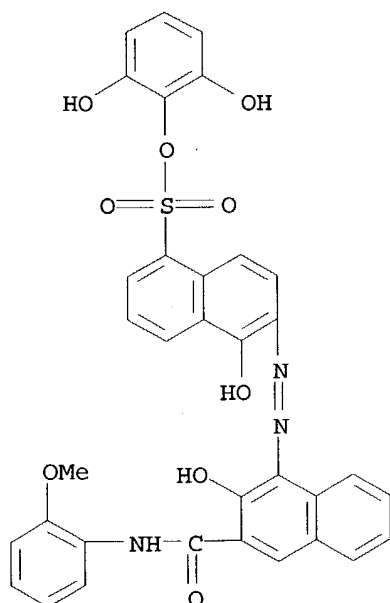
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos. photosensitive compns. for lithog. plate and color filter preparation  
containing photothermal conversion materials and)

RN 235745-93-4 CAPLUS

CN 1-Naphthalenesulfonic acid, 5-hydroxy-6-[[2-hydroxy-3-[[2-  
methoxyphenyl)amino]carbonyl]-1-naphthalenyl]azo]-, 2,6-dihydroxyphenyl  
ester, polymer with 2-propanone (9CI) (CA INDEX NAME)

CRN 235745-92-3

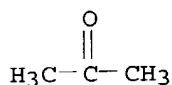
CMF C34 H25 N3 O9 S



CM 2

CRN 67-64-1

CMF C3 H6 O



IC ICM B41C001-10

ICS B41M005-36

CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos photosensitive compn lithog printing plate; photoresist phenolic ester resin photothermal conversion

IT Optical filters

(color; pos. photosensitive compns. comprising esterified alkali-soluble resins having phenolic hydroxyl groups for preparation of)

IT Positive photoresists

(containing esterified alkali-soluble resins having phenolic hydroxyl groups and photothermal conversion materials)

IT Phenolic resins, preparation

RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (novolak, cresol-based; pos. photosensitive compns. for lithog. plate)

- and color filter preparation containing photothermal conversion materials and)
- IT Liquid crystal displays  
(pos. photosensitive compns. comprising esterified alkali-soluble resins having phenolic hydroxyl groups for preparation of color filters for)
- IT Printing (impact)  
(pos. photosensitive compns. containing esterified alkali-soluble resins having phenolic hydroxyl groups and photothermal conversion materials for color proofing in)
- IT Photoimaging materials  
(pos.; containing esterified alkali-soluble resins having phenolic hydroxyl groups and photothermal conversion materials)
- IT Lithographic plates  
(presensitized, pos.-working; containing esterified alkali-soluble resins having phenolic hydroxyl groups and photothermal conversion materials)
- IT 68400-73-7P, Formaldehyde-o-cresol-m-cresol-p-cresol copolymer  
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(novolak resin; for pos. photosensitive compns. for lithog. plate and color filter preparation)
- IT 1552-42-7P, Crystal violet lactone 193687-63-7P  
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(pos. photosensitive compns. for lithog. plate and color filter preparation comprising alkali-soluble resins having phenolic hydroxyl groups and)
- IT 235745-87-6P 235745-89-8P 235745-91-2P 235745-93-4P  
235745-95-6P 235745-97-8P 235745-99-0P  
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(pos. photosensitive compns. for lithog. plate and color filter preparation containing photothermal conversion materials and)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L154 ANSWER 37 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:253835 CAPLUS

DOCUMENT NUMBER: 130:338829

TITLE: Photosensitive heat-resistant resin precursor composition

INVENTOR(S): Tomikawa, Masao; Yoshida, Tomoyuki; Miura, Yasuo

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

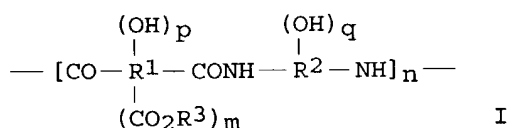
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11106651	A2	19990420	JP 1997-268655	19971001
PRIORITY APPLN. INFO.:			JP 1997-268655	19971001

GI



AB The title composition, useful for the formation of a surface protective film on a **semiconductor** device and an interlayer insulating film, comprises a polymer having a structural unit of I ( $\text{R}^1 = \text{C}_{\geq 2}$  tri- or tetra-valent organic group;  $\text{R}^2 = \text{C}_{\geq 2}$  divalent organic group;  $\text{R}^3 = \text{OH}$ ,  $\text{C}_{1-10}$  alkyl, alkoxy;  $n = 5-100,000$ ;  $m = 1, 2$ ;  $p = 1-4$ ) and a quinonediazide compound. Thus, 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane (BAHF) 18.3 g and allylglycidyl ether 34.2 g were react to give a dianhydride, 71.4 g of which was reacted with 57.4 g of an diamine prepared from BAHF and 4-nitrobenzoyl chloride to give a hydroxy containing polyamide-polyimide photosensitive resin precursor, which was applied to a film, photoirradiated to give a film.

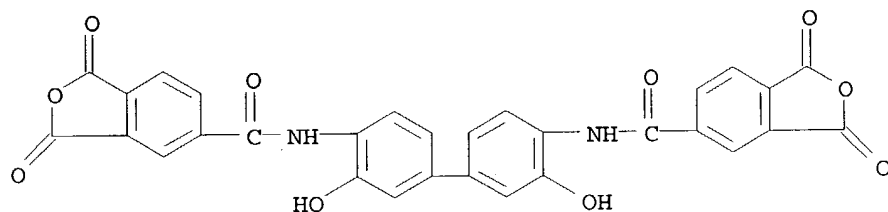
IT 22452-77-3P 223255-30-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomer; photosensitive heat-resistant resin precursor composition)

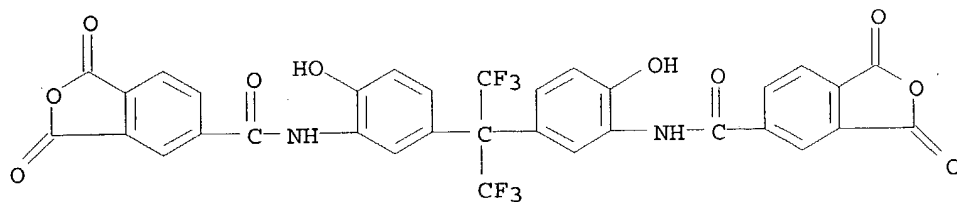
RN 22452-77-3 CAPLUS

CN 5-Isobenzofurancarboxamide,  $\text{N,N}'$ -(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide,  $\text{N,N}'$ -[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IT 223652-11-7P 223652-14-0P 223652-15-1P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(photosensitive heat-resistant resin precursor compn

.)

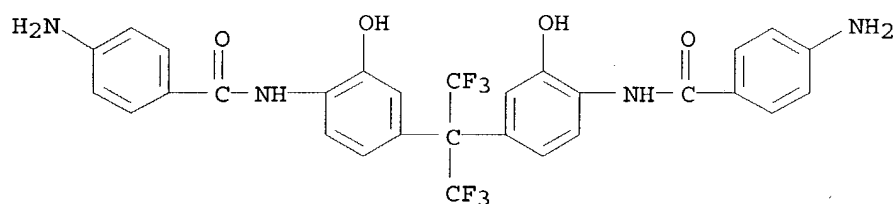
RN 223652-11-7 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(2-hydroxy-4,1-phenylene)]bis[4-aminobenzamide] (9CI) (CA INDEX NAME)

CM 1

CRN 223652-10-6

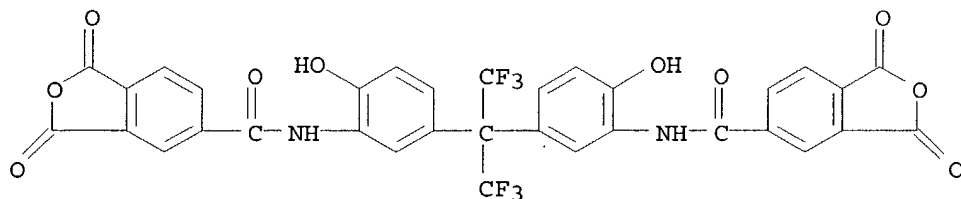
CMF C29 H22 F6 N4 O4



CM 2

CRN 223255-30-9

CMF C33 H16 F6 N2 O10



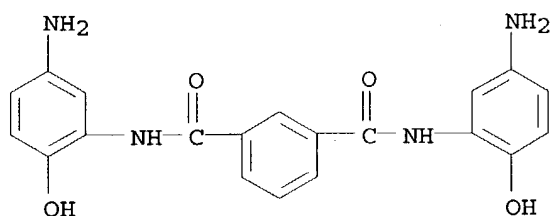
RN 223652-14-0 CAPLUS

CN 1,3-Benzenedicarboxamide, N,N'-bis(5-amino-2-hydroxyphenyl)-, polymer with N,N'-(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)bis[1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxamide] (9CI) (CA INDEX NAME)

CM 1

CRN 25596-69-4

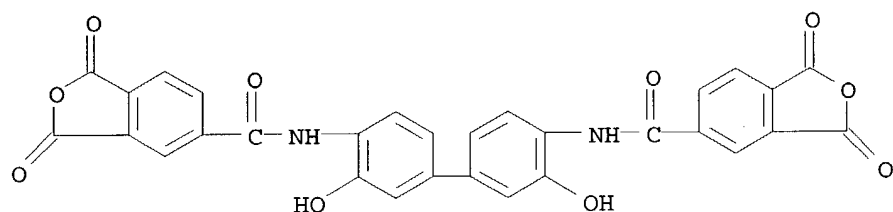
CMF C20 H18 N4 O4



CM 2

CRN 22452-77-3

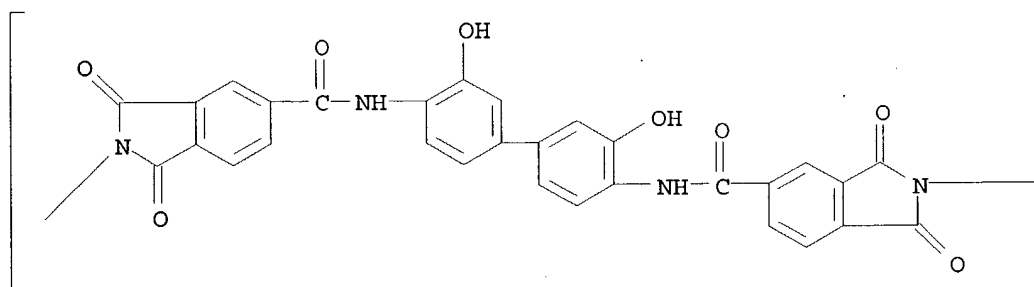
CMF C30 H16 N2 O10



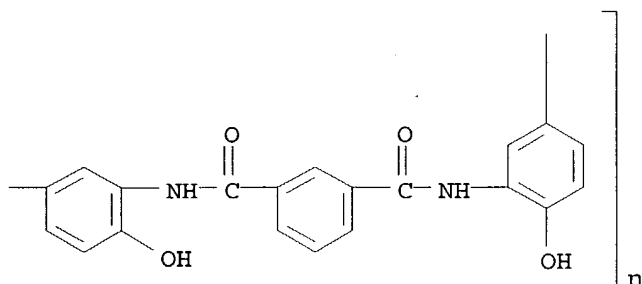
RN 223652-15-1 CAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonylimino(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)iminocarbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)(4-hydroxy-1,3-phenylene)iminocarbonyl-1,3-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



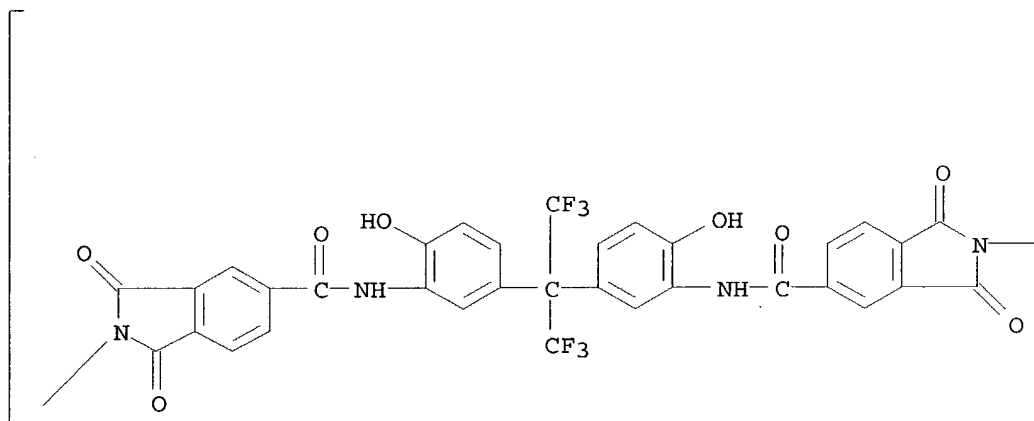
IT 223652-12-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(photosensitive heat-resistant resin precursor compn  
.)

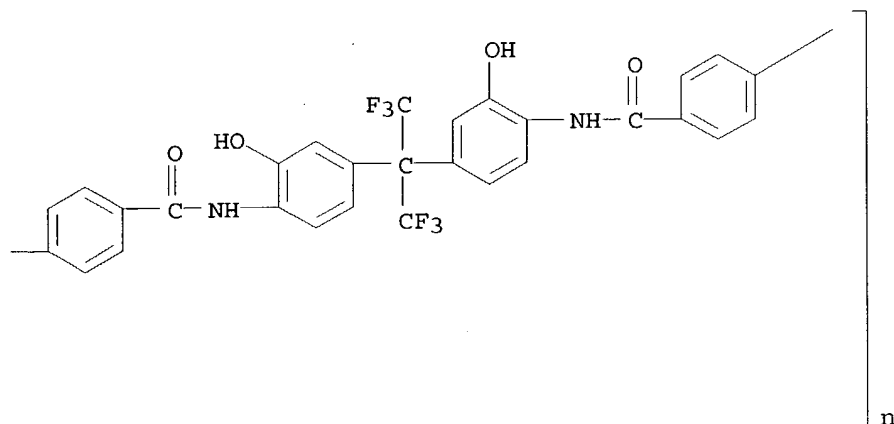
RN 223652-12-8 CAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenylenecarbonylimino(2-hydroxy-1,4-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](3-hydroxy-1,4-phenylene)iminocarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A







- IC ICM C08L079-08  
ICS C08K005-28
- CC 37-3 (Plastics Manufacture and Processing)  
Section cross-reference(s): 74
- ST hydroxy contg polyamide polyimide photosensitive heat resistant resin precursor
- IT Polyimides, preparation  
Polyimides, preparation  
Polyimides, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(polyamide-, fluorine-containing; photosensitive heat-resistant resin precursor composition)
- IT Polyimides, preparation  
Polyimides, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(polyamide-, photosensitive heat-resistant resin precursor composition)
- IT Fluoropolymers, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(polyamide-polyimide-, photosensitive heat-resistant resin precursor composition)
- IT Polyamides, preparation  
Polyamides, preparation  
Polyamides, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(polyimide-, fluorine-containing; photosensitive heat-resistant resin precursor composition)
- IT Polyamides, preparation  
Polyamides, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(polyimide-, photosensitive heat-resistant resin precursor composition)
- IT 22452-77-3P 25596-69-4P 223255-30-9P 223652-10-6P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; photosensitive heat-resistant resin precursor composition)

IT 223652-11-7P 223652-14-0P 223652-15-1P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (photosensitive heat-resistant resin precursor compn  
 .)  
 IT 223652-12-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (photosensitive heat-resistant resin precursor compn  
 .)  
 IT 99-57-0, 2-Amino-4-nitrophenol 99-63-8, Isophthalic acid chloride  
 122-04-3, 4-Nitrobenzoylchloride 1204-28-0, Trimellitic anhydride  
 chloride 4363-03-5, 3-Hydroxy-4-aminobiphenyl 83558-87-6,  
 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (starting material; photosensitive heat-resistant resin  
 precursor composition)

L154 ANSWER 38 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1999:241947 CAPLUS  
 DOCUMENT NUMBER: 130:297410  
 TITLE: Composition of photosensitive polyimide precursor  
 INVENTOR(S): Tomikawa, Masao; Yoshida, Tomoyuki; Miura, Yasuo  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11100503	A2	19990413	JP 1998-198425	19980714
JP 3440832	B2	20030825		

PRIORITY APPLN. INFO.: JP 1997-188456 A 19970714  
 JP 1997-206125 A 19970731

AB The invention provides a composition of an alkaline developable photosensitive polyimide precursor, suited for use in preparing a protective film on the surfaces of semiconductor devices, thus the composition comprises quinondiazide compds. and polymers having the unit structure represented by [COR1(OH)p(COOR3)mCONHR2NH]n [ R1 = 4- to 8-valent group containing ≥2 carbons; R2 = divalent group containing ≥2 carbons; R3 = H, C1-20 group; n = 10-100000; m = 1 or 2; p = 1-4 integer].

IT 223255-31-0 223255-38-7, Bis(4-(4-aminophenoxy)phenyl)sulfone-1,3-bis(3-aminopropyl)tetramethyldisiloxane-par6 copolymer

RL: POF (Polymer in formulation); USES (Uses)  
 (composition of photosensitive polyimide precursor)

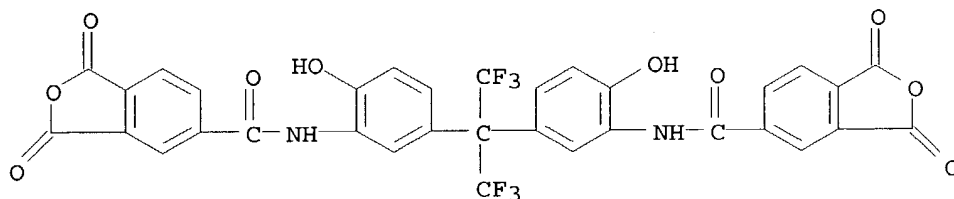
RN 223255-31-0 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 2,2'-bis(trifluoromethyl)[1,1'-biphenyl]-4,4'-diamine, 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediy)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

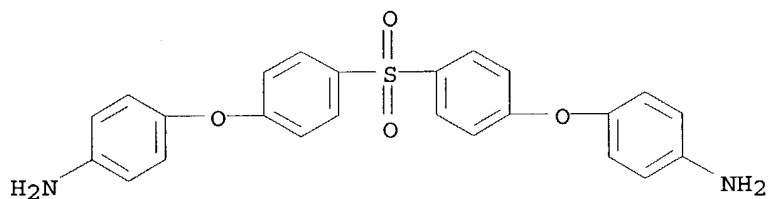
CMF C33 H16 F6 N2 O10



CM 2

CRN 13080-89-2

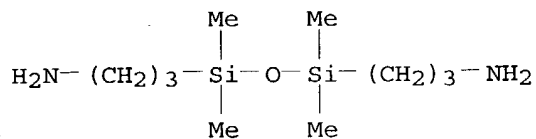
CMF C24 H20 N2 O4 S



CM 3

CRN 2469-55-8

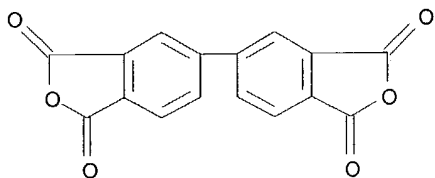
CMF C10 H28 N2 O Si2



CM 4

CRN 2420-87-3

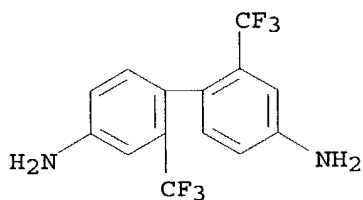
CMF C16 H6 O6



CM 5

CRN 341-58-2

CMF C14 H10 F6 N2



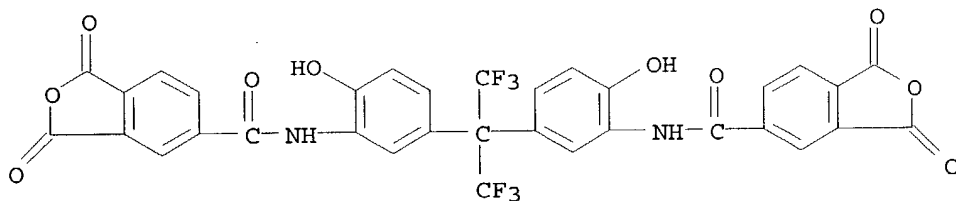
RN 223255-38-7 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 223255-30-9

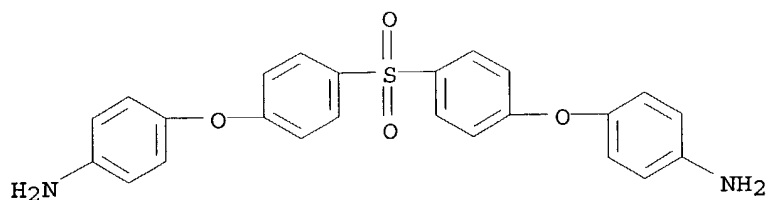
CMF C33 H16 F6 N2 O10



CM 2

CRN 13080-89-2

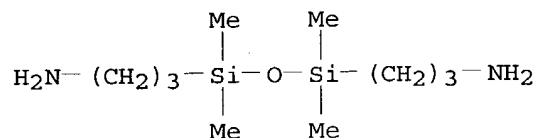
CMF C24 H20 N2 O4 S



CM 3

CRN 2469-55-8

CMF C10 H28 N2 O Si2

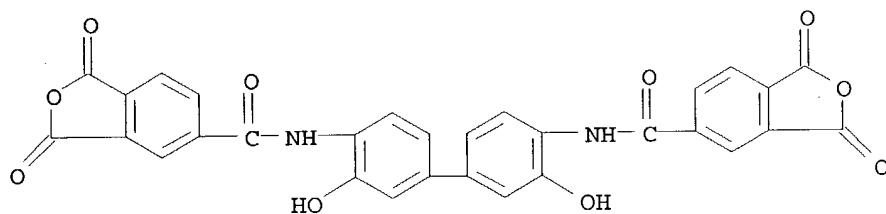


IT 22452-77-3P 223255-30-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(composition of photosensitive polyimide precursor)

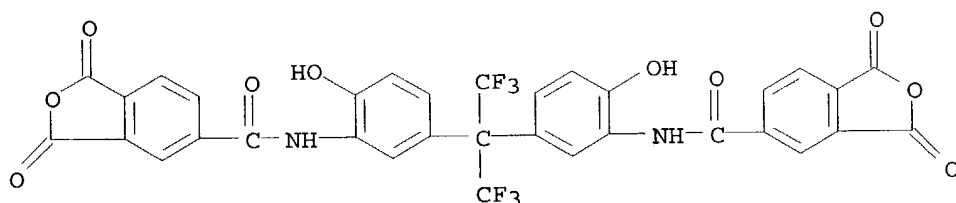
RN 22452-77-3 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



RN 223255-30-9 CAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo- (9CI) (CA INDEX NAME)



IC ICM C08L079-08  
ICS C08K005-28

CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 74, 76

ST compn photosensitive polyimide precursor alk developable quinondiazide

IT **Photoresists**  
(composition of photosensitive polyimide precursor)

IT Polyimides, uses  
RL: POF (Polymer in formulation); USES (Uses)  
(composition of photosensitive polyimide precursor)

IT 32155-33-2 37829-64-4 180888-28-2 223267-42-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(composition of photosensitive polyimide precursor)

IT 105921-05-9 223255-22-9, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-4,4'-diaminodiphenyl ether-trimellitic anhydride copolymer  
223255-24-1, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-1,3-bis(3-aminopropyl)tetramethyl disiloxane-2,2'-bis(trifluoromethyl)benzidine-trimellitic anhydride chloride copolymer 223255-26-3,  
4,4'-Diaminodiphenyl ether-2,4-diamino-6-hydroxypyrimidine-trimellitic anhydride copolymer 223255-28-5, 4,4'-Benzophenonetetracarboxylic acid dianhydride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-1,3-bis(3-aminopropyl)tetramethyldisiloxane-2,2'-bis(trifluoromethyl)benzidine-4,4'-diaminodiphenylether-paraphenylenediamine-trimellitic anhydride chloride copolymer **223255-31-0** 223255-36-5, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-1,3-bis(3-aminopropyl)tetramethyldisiloxane-2,2'-bis(trifluoromethyl)benzidine-4,4'-diaminodiphenylether-trimellitic anhydride chloride copolymer **223255-38-7**, Bis(4-(4-aminophenoxy)phenyl)sulfone-1,3-bis(3-aminopropyl)tetramethyldisiloxane-par6 copolymer  
RL: POF (Polymer in formulation); USES (Uses)  
(composition of photosensitive polyimide precursor)

IT 1204-28-0, Trimellitic anhydride chloride 4363-03-5,  
3-Hydroxy-4-aminobiphenyl 83558-87-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(composition of photosensitive polyimide precursor)

IT **22452-77-3P 223255-30-9P**  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(composition of photosensitive polyimide precursor)

L154 ANSWER 39 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:440075 CAPLUS

DOCUMENT NUMBER: 127:115282

TITLE: Manufacture of LSI circuit using water-soluble positive-working **photoresist composition**

INVENTOR(S): Maekawa, Yasunari; Miwa, Takao; Okabe, Yoshiaki; Ishida, Mina; Hirano, Toshinori

PATENT ASSIGNEE(S): Hitachi, Ltd., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 19 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09134003	A2	19970520	JP 1995-290841	19951109
PRIORITY APPLN. INFO.:			JP 1995-290841	19951109

AB The title manufacture comprises (1) a process to coat a substrate with a photosensitive composition which comprises carboxylic acid polymers (-R1(R2)(COOH)-)n [R1 = C2-20 organic group; n = 10-20,000; R2 = C1-20 organic group, H, halo], (secondary- and/or tertiary-)amines, photobase generators, and base generators, (2) a process to irradiate the coating via a photomask and (3) a process to develop the exposed coating. The manufacture is also applied to manufacture a liquid crystal display orientation layer.

IT 191674-52-9P  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (water-soluble pos.-working photoresist composition for manufacturing LSI circuit)

RN 191674-52-9 CAPLUS

CN Poly[iminocarbonyl-1,3-phenylenecarbonylimino[3,3'-bis[[[9H-fluoren-9-ylmethoxy)carbonyl]oxy][1,1'-biphenyl]-4,4'-diyl]] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

IC ICM G03F007-004  
 ICS G02F001-1337; G03F007-039; H01L021-027; H01L021-312

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38, 76

ST LSI circuit pos working photoresist; liq crystal display orientation layer

IT Integrated circuits  
 Liquid crystal displays  
 Photolithography  
 Positive photoresists  
 (manufacture of LSI circuit using water-soluble pos.-working photoresist composition)

IT Polyamic acids  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (water-soluble pos.-working photoresist composition for manufacturing LSI circuit)

IT Polyimides, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (water-soluble pos.-working photoresist composition for manufacturing LSI circuit)

IT 89-32-7 1795-48-8 5704-20-1 13635-04-6 15205-66-0,  
 2-Methylsulfonylethanol 24324-17-2, 9-Fluorenylmethanol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (water-soluble pos.-working photoresist composition for

manufacturing LSI circuit)

IT 27026-22-8P 191589-78-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (water-soluble pos.-working photoresist composition for manufacturing LSI circuit)

IT 25736-02-1P, p,p'-Diaminodiphenyl ether-oxydiphthalic acid dianhydride copolymer 26298-81-7P, 3,3',4,4'-Biphenyltetracarboxylic acid dianhydride- p,p'-diaminodiphenyl ether copolymer 29319-17-3P, 1,2,3,4-Cyclopentanetetracarboxylic dianhydride- p,p'-diaminodiphenyl ether copolymer 32824-24-1P, Oxydiphthalic acid dianhydride-p-xylylenediamine copolymer 74230-25-4P, Oxydiphthalic anhydride-phenylenediamine copolymer 180613-42-7P 187838-40-0P 191589-65-8P 191589-73-8P 191589-80-7P 191589-83-0P 191589-87-4P 191674-52-9P 191674-57-4P 191674-61-0P 191674-64-3P  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (water-soluble pos.-working photoresist composition for manufacturing LSI circuit)

IT 191589-68-1 191589-92-1  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (water-soluble pos.-working photoresist composition for manufacturing LSI circuit)

L154 ANSWER 40 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:102980 CAPLUS  
 DOCUMENT NUMBER: 118:102980  
 TITLE: Preparation of polybenzoxazoles, polybenzimidazoles, and polybenzothiazoles  
 INVENTOR(S): Perry, Robert J.  
 PATENT ASSIGNEE(S): Eastman Kodak Co., USA  
 SOURCE: U.S., 12 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5149755	A	19920922	US 1991-726437	19910705
CA 2070269	AA	19930106	CA 1992-2070269	19920602
EP 522469	A2	19930113	EP 1992-111331	19920703
EP 522469	A3	19930929		

R: DE, FR, GB

JP 05262877	A2	19931012	JP 1992-177306	19920706
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PRIORITY APPLN. INFO.: US 1991-726437 19910705

AB The polymers are prepared in presence of a catalyst (compds. of Pt, Ni or Pd) and solvent by reaction of CO, aromatic halide X1Ar1Z1, aromatic amine Z2Ar2M1 (X1, Z1, Z2, M1 are non-ortho; one of Z1 and Z2 is X2 and the other is M2; Ar1 and Ar2 are aromatic and heteroarom. 6-20 ring-atom moieties; X1 and X2 are independently I and Br; M1 and M2 are independently moieties having an NH2 group, and ortho to NH2, a group from NH2, OH and SH. Thus, a precyclization polymer was prepared from 4,4'-diiododiphenyl ether, 3,3',4,4'-tetraaminobiphenyl, and CO (7.7



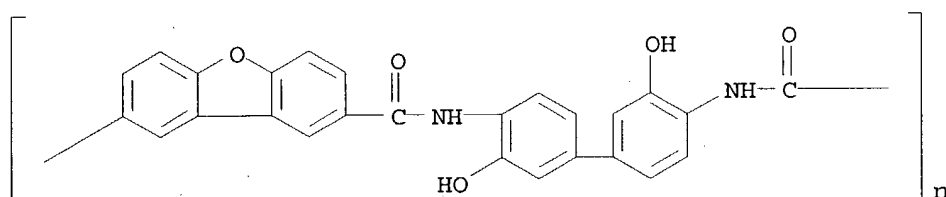
kg/cm<sup>2</sup>) in AcNMe<sub>2</sub> in presence of bis(triphenylphosphine)palladium(II) chloride/Ph<sub>3</sub>P catalyst and base at 120°. Curing to the cyclized polymer was at 100-325°.

IT 146167-65-9P

RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and cyclization of)

RN 146167-65-9 CAPLUS

CN Poly[2,8-dibenzofurandiylcarbonylimino(3,3'-dihydroxy[1,1'-biphenyl]-4,4'-diyl)iminocarbonyl] (9CI) (CA INDEX NAME)



IC ICM C08G073-18

ICS C08G073-22; C08G075-32

NCL 528210000

CC 35-5 (Chemistry of Synthetic High Polymers)

ST **polybenzoxazole** prepn cyclopolymer carbonylation;  
polybenzothiazole prepn; polybenzimidazole prepn

IT Carbonylation

(Heck, heterocyclization and, in preparation of benzimidazole, -oxazole, and -thiazole polymers)

IT Polybenzimidazoles

**Polybenzoxazoles**

RL: PREP (Preparation)

(preparation of, by carbonylation/heterocyclopolymer. and ring closure)

IT Polymerization catalysts

(cyclo-, hetero, carbonylation and, compds. of palladium, for preparation of benzimidazole, -oxazole and -thiazole polymers)

IT Polymerization

(cyclo-, hetero, carbonylation and, in preparation of benzimidazole, -oxazole, and -thiazole polymers)

IT Polymers, preparation

RL: PREP (Preparation)

(polybenzothiazoles, preparation of, by carbonylation/heterocyclopolymer. and ring closure)

IT Cyclocondensation reaction

(thermal, of precursors in preparation of benzimidazole, -oxazole, and -thiazole polymers)

IT 603-35-0, Triphenylphosphine, uses 1663-45-2, 1,2-

Bis(diphenylphosphino)ethane 3375-31-3, Palladium diacetate

7440-02-0D, Nickel, compds. 7440-05-3D, Palladium, compds. 7440-06-4D,

Platinum, compds. 7647-10-1, Palladium dichloride 7790-38-7, Palladium

diiodide 12257-74-8 13444-94-5, Palladium dibromide 13965-03-2

14024-61-4 19978-61-1 29964-62-3 31277-98-2 31989-49-8

51364-51-3 59831-02-6 72287-26-4 106584-00-3

RL: USES (Uses)

(carbonylation/heterocyclopolymer. catalysts, for preparation of benzimidazole, -oxazole and -thiazole polymers)

IT 25734-65-0P 25868-24-0P 25868-25-1P 32109-44-7P 89718-41-2P,  
 Poly(2,5-benzoxazolediyl) 108389-04-4P 112480-78-1P 112480-83-8P  
 146167-66-0P 146167-67-1P 146167-69-3P 146185-34-4P 146185-36-6P  
 146185-39-9P 146185-40-2P  
 RL: PREP (Preparation)  
 (prepared of, cured, catalysts for)

IT 146116-56-5P 146116-57-6P 146116-58-7P 146116-59-8P 146116-60-1P  
 146116-61-2P 146116-62-3P 146116-63-4P 146116-64-5P 146116-65-6P  
 146116-66-7P 146116-67-8P 146116-68-9P 146162-73-4P 146162-74-5P  
 146288-94-0P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and curing of, catalysts for)

IT 27026-22-8P 27026-23-9P 68491-51-0P 75433-42-0P 92450-78-7P  
 112480-82-7P 113339-21-2P 145267-60-3P **146167-65-9P**  
 146167-68-2P 146185-33-3P 146185-35-5P 146185-37-7P 146185-38-8P  
 146186-11-0P  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and cyclization of)

L154 ANSWER 41 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:90768 CAPLUS  
 DOCUMENT NUMBER: 118:90768  
 TITLE: Electrophotographic imaging method  
 INVENTOR(S): Inoue, Tomohiro; Fukagai, Toshio; Suzuki, Kayoko;  
 Adachi, Hiroshi; Shimada, Tomoyuki; Ariga, Tamotsu;  
 Sasaki, Masaomi  
 PATENT ASSIGNEE(S): Ricoh K. K., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04063352	A2	19920228	JP 1990-175559	19900702
PRIORITY APPLN. INFO.:			JP 1990-175559	19900702

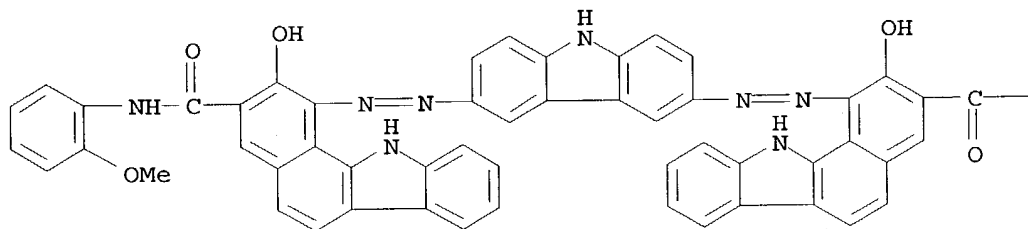
AB In obtaining multiple photocopies by uniformly changing an organic photoreceptor, imagewise exposing, developing, transforming the toner image to plain paper, removing the residual charge, blade cleaning the photoreceptor, and repeating the process, the photoreceptor is characterized by the relation  $\eta = \eta_0 E^n$  [ $\eta_0$  = constant,  $\eta$  = electrophotog. quantum efficiency,  $E$  = elec. field intensity] with  $n \geq 0.5$ . In the composite-type photoreceptor, the ionization p.d. between the charge-generating material and the charge-transporting material ( $\Delta Z_p$ ) is  $\leq 0.25$  eV. Even when the photoconductor layer thickness diminishes upon repeated blade cleaning, the sensitivity of the photoreceptor does not diminish.

IT **135875-93-3 145004-63-3**  
 RL: USES (Uses)  
 (charge-generating material, for blade-cleaning-resistant electrophotog. photoreceptor)

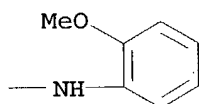
RN 135875-93-3 CAPLUS  
 CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1'-[9H-carbazole-3,6-

diylbis(azo)]bis[2-hydroxy-N-(2-methoxyphenyl) - (9CI) (CA INDEX NAME)

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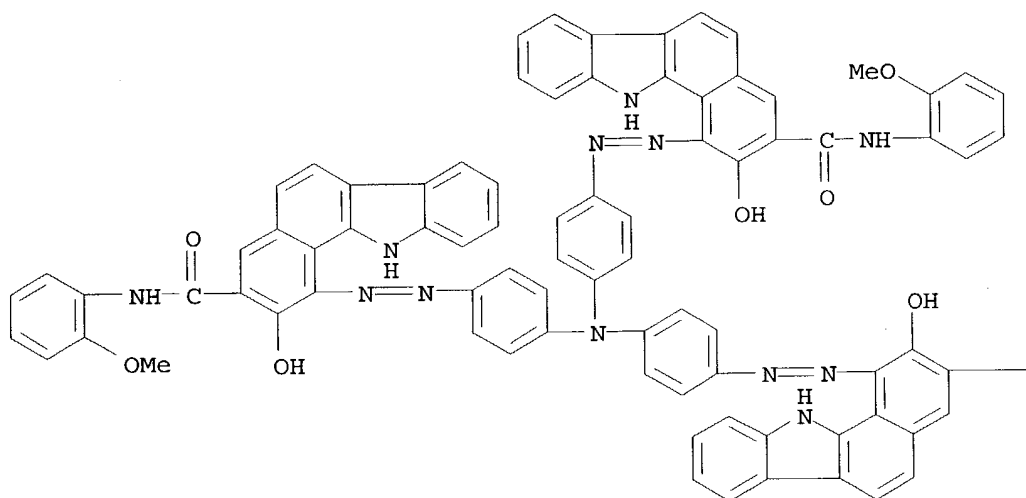
PAGE 1-B

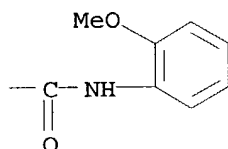


RN 145004-63-3 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1',1''-[nitritotris(4,1-phenyleneazo)]tris[2-hydroxy-N-(2-methoxyphenyl) - (9CI) (CA INDEX NAME)

PAGE 1-A

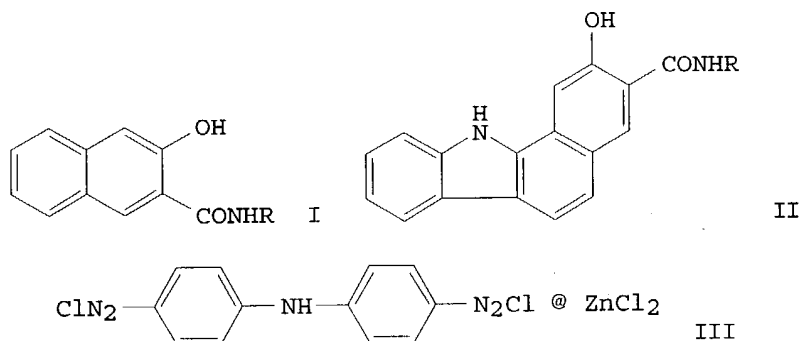




IC ICM G03G005-04  
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST electrophotog photoreceptor composite blade cleaning  
 IT Electrophotographic photoconductors and photoreceptors  
     (composite-type, blade-cleaning resistant)  
 IT 69534-94-7 84809-01-8 89548-48-1 94239-76-6 115105-08-3  
 125286-61-5 135691-67-7 **135875-93-3** 137866-04-7  
 137866-09-2 145004-58-6 145004-59-7 145004-60-0 145004-61-1  
 145004-62-2 **145004-63-3** 145849-42-9  
 RL: USES (Uses)  
     (charge-generating material, for blade-cleaning-resistant electrophotog. photoreceptor)  
 IT 41578-11-4 57609-72-0 75232-44-9 89114-90-9 89114-91-0  
 RL: USES (Uses)  
     (charge-transporting material, for blade-cleaning-resistant electrophotog. photoreceptor)

L154 ANSWER 42 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1992:49027 CAPLUS  
 DOCUMENT NUMBER: 116:49027  
 TITLE: Optical information copying media  
 INVENTOR(S): Mori, Toshiharu; Oshima, Kiyotaka  
 PATENT ASSIGNEE(S): Hitachi Maxell, Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03210552	A2	19910913	JP 1990-6856	19900116
PRIORITY APPLN. INFO.:			JP 1990-6856	19900116
GI				



AB Information copying media with dot pattern of different reflectivity, formed by exposure and development, use materials having photosensitive layer containing diazonium salts with  $\geq 2$  diazo groups in the mol. and couplers I or II (R = Ph, Ph substituted by alkyl, halo, alkoxy, nitro or cyano groups, morpholino, morpholino substituted by alkyl, halo, alkoxy, nitro or cyano groups). These media for information reading can be produced easily and read by 780-nm beam of **semiconductor** lasers. Thus, a solution containing 0.13 g III, 0.18 g coupler I (R = m-nitrophenyl), and

antioxidants, was applied on Al-deposited PET film. Obtained film was patternwise exposed through a photomask to UV and developed with  $\text{NH}_3$ . III is decomposed in the exposed part, and couples with the coupler to form a bisazo dye in the unexposed part, to form dot pattern with different reflectivity.

IT 138323-61-2

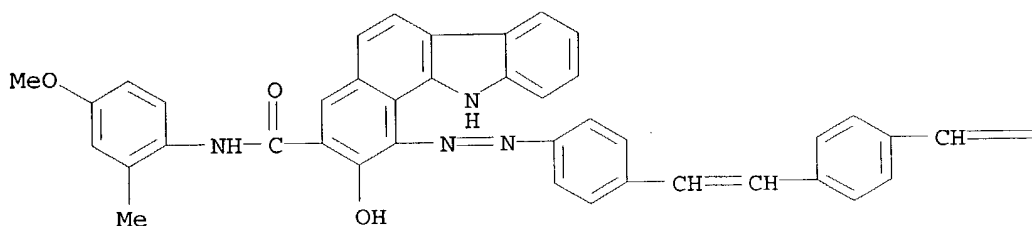
RL: USES (Uses)

(developed photosensitive material for copying optical information containing)

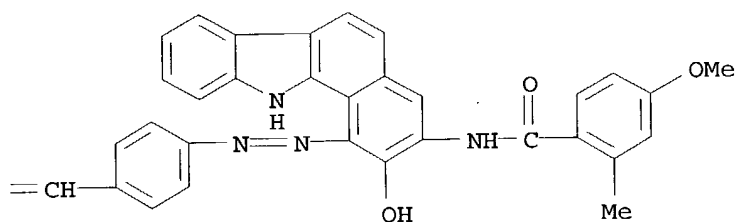
RN 138323-61-2 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 2-hydroxy-1-[[4-[2-[4-[2-[4-[[2-hydroxy-3-[(4-methoxy-2-methylbenzoyl)amino]-11H-benzo[a]carbazol-1-yl]azo]phenyl]ethenyl]phenyl]ethenyl]phenyl]azo]-N-(4-methoxy-2-methylphenyl)- (9CI) (CA INDEX NAME)

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PAGE 1-B



IC ICM G03C001-52  
ICS G03C001-54; G11B007-24  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST optical information copying media photosensitive  
IT Diazo process  
(preparation of laser-readable information storage materials by)  
IT Recording materials  
(optical, diazo-containing, for copying of optical information)  
IT 138323-60-1 138323-61-2 138323-62-3  
RL: USES (Uses)  
(developed photosensitive material for copying optical information containing)  
IT 17776-79-3 138323-59-8  
RL: USES (Uses)  
(photosensitive material for copying optical information containing couplers and)  
IT 92-78-4 135-65-9 5840-22-2  
RL: USES (Uses)  
(photosensitive material for copying optical information containing diazo compds. and)

L154 ANSWER 43 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1990:641496 CAPLUS

DOCUMENT NUMBER: 113:241496

TITLE: Electrophotographic photoreceptors using bisazo pigment as charge-generating agent

INVENTOR(S): Sasaki, Masaomi; Shimada, Tomoyuki; Hashimoto, Mitsuru

PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

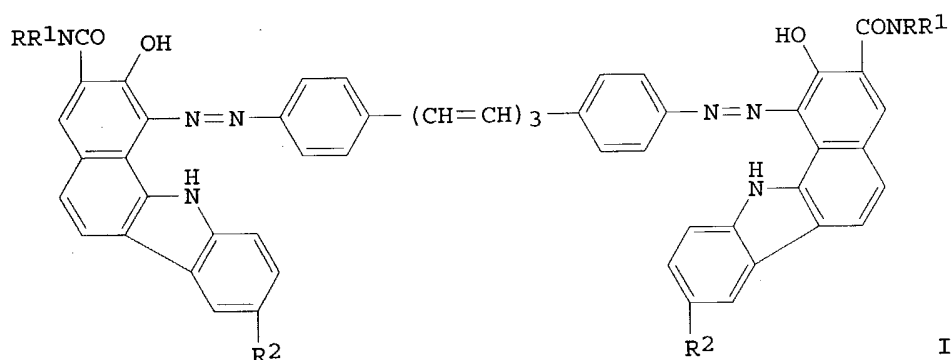
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02134645	A2	19900523	JP 1988-288546	19881114
JP 2731555	B2	19980325		
US 5097022	A	19920317	US 1989-431233	19891103
PRIORITY APPLN. INFO.:			JP 1988-288546	19881114
			JP 1988-288547	19881114

GI



AB The title photoreceptors comprise a conductive support with a coating of a layer containing a bisazo pigment I [R = (substituted) aryl, R1 = H, (substituted) alkyl; R2 = halo, (substituted) alkyl, alkoxy, acyl, substituted amino, CN, NO2]. The photoreceptors show high sensitivity in the regions of visible light and **semiconductor** laser wavelength. Thus, a photoreceptor was prepared by using an Al-deposited polyester film, a charge-generating layer containing I (R = C6H4Cl-o, R1 = H, R2 = Cl) and a charge-transporting layer containing 9-ethylcarbazole-3-aldehyde-1-methyl-1-phenylhydrazone.

IT 130018-19-8

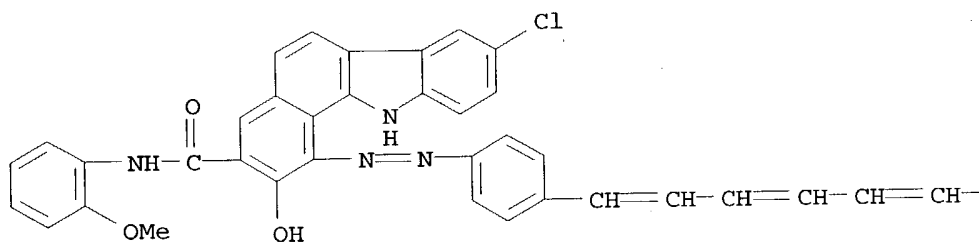
RL: USES (Uses)

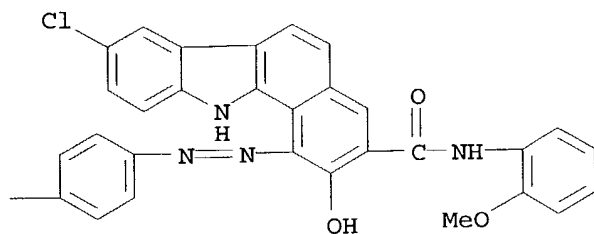
(charge-generating agent, electrophotog. photoreceptor using)

RN 130018-19-8 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1'-[1,3,5-hexatriene-1,6-diylbis(4,1-phenyleneazo)]bis[8-chloro-2-hydroxy-N-(2-methoxyphenyl)-(9CI) (CA INDEX NAME)

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IC ICM G03G005-06  
ICS C09K009-02

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 41

ST electrophotog photoreceptor charge generating agent; bisazo pigment  
electrophotog photoreceptor; phenylhexatriene deriv electrophotog  
photoreceptor; carbazole deriv electrophotog photoreceptor

IT Pigments  
(azo, bis-, as charge-generating agent in electrophotog. photoreceptor)

IT Electrophotographic photoconductors  
(using bisazo pigment as charge-generating agent)

IT 124906-45-2 124906-46-3 124906-59-8 130018-17-6 130018-18-7  
130018-19-8 130018-20-1 130018-21-2 130018-22-3  
130018-23-4 130018-24-5 130018-25-6 130018-26-7 130018-27-8  
130018-28-9  
RL: USES (Uses)  
(charge-generating agent, electrophotog. photoreceptor using)

IT 41578-11-4 53332-49-3 75232-44-9 95304-21-5,  $\alpha$ -Phenyl-4'-N,N-  
diphenylaminostilbene  
RL: USES (Uses)  
(charge-transporting agent, electrophotog. photoreceptor using)

IT 130018-16-5P  
RL: PREP (Preparation)  
(preparation of, charge-generating agent, electrophotog. photoreceptor  
using)

IT 89548-21-0, 1,6-Diphenyl-1,3,5-hexatriene-4',4''-bis(diazonium  
tetrafluoroborate) 117826-87-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, for bisazo pigment preparation)

L154 ANSWER 44 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:523798 CAPLUS

DOCUMENT NUMBER: 111:123798

TITLE: Electrophotographic photoreceptors containing a bisazo pigment as a charge-generating agent

INVENTOR(S): Haino, Kozo; Enomoto, Kazuhiro

PATENT ASSIGNEE(S): Mitsubishi Paper Mills, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho; 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1



PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01065558	A2	19890310	JP 1987-222731	19870904
PRIORITY APPLN. INFO.:			JP 1987-222731	19870904

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Electrophotog. photoreceptors have on a conductive support a layer containing, as a charge-generating agent, a bisazo pigment I [R = coupler residue; R1-2 = H, halo, alkyl, alkoxy; R3 = H, halo, CN, (substituted) acyl, alkyl, alkoxy, aryl; n = 1-5]. The photoreceptors exhibit high sensitivity toward white light, emission diodes, and **semiconductor** lasers and good cyclicability. Thus, Metalumy (Al-deposited film) was coated with a composition containing II and Vylon 200 (polyester resin) and overcoated with a composition containing p-diethylaminobenzaldehyde diphenylhydrazone and Panlite L-1250 (polycarbonate resin) to give a photoreceptor showing good sensitivity and cyclicability.

IT 122371-06-6

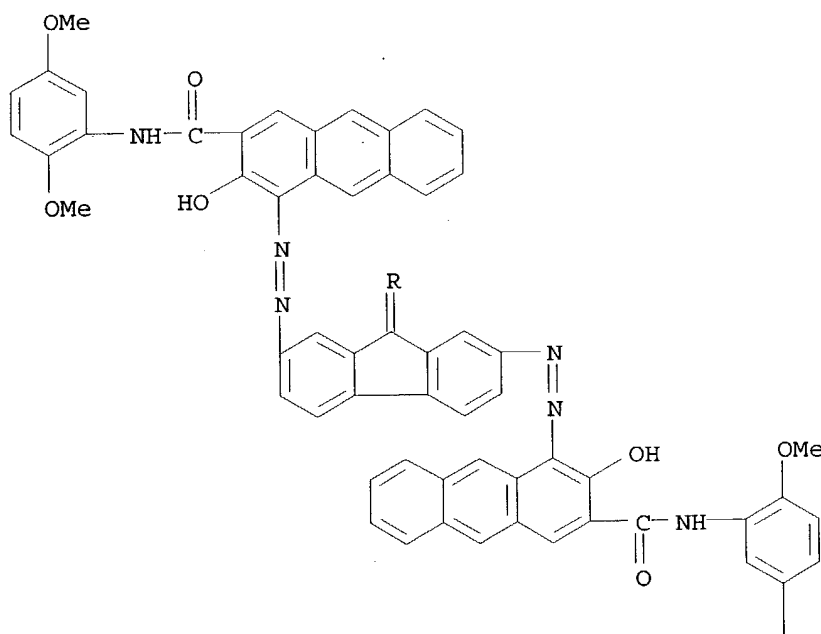
RL: USES (Uses)

(charge generating agent, for electrophotog. photoreceptor)

RN 122371-06-6 CAPLUS

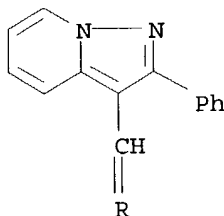
CN 2-Anthracenecarboxamide, 4,4'-[[9-[(2-phenylpyrazolo[1,5-a]pyridin-3-yl)methylene]-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)

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OMe



IC ICM G03G005-06  
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST electrophotog photoreceptor charge generating agent; bisazo pigment electrophotog photoreceptor  
 IT Electrophotographic photoconductors  
     (charge generating agents, bisazo pigments as, with high sensitivity and cyclicability)  
 IT 122371-02-2 122371-03-3 122371-04-4 122371-05-5 **122371-06-6**  
 122371-07-7 122371-08-8 122371-09-9 122371-10-2 122371-11-3  
 RL: USES (Uses)  
     (charge generating agent, for electrophotog. photoreceptor)  
 IT 53332-49-3 68189-23-1, p-Diethylaminobenzaldehyde diphenylhydrazone  
 RL: USES (Uses)  
     (charge transporting agent, for electrophotog. photoreceptor)  
 IT 122371-12-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
     (reaction of, bisazo pigment from, for electrophotog. photoreceptor)

L154 ANSWER 45 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1988:580362 CAPLUS

DOCUMENT NUMBER: 109:180362

TITLE: Electrophotographic photoreceptors containing bisazo pigments

INVENTOR(S): Matsumoto, Masakazu

PATENT ASSIGNEE(S): Canon K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

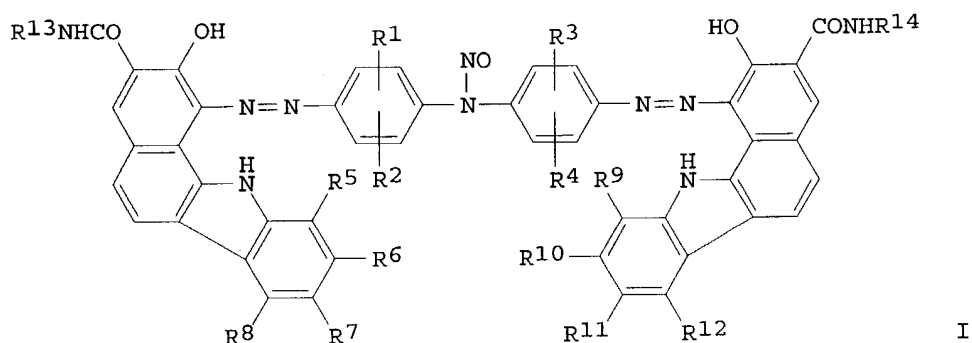
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63027851	A2	19880205	JP 1986-172582	19860722
PRIORITY APPLN. INFO.:			JP 1986-172582	19860722

GI



AB The claimed electrophotog. photoreceptors contain bisazo pigments I [R1-R12 = H, halo, alkyl, aralkyl, alkoxy, NO<sub>2</sub>, CN, CF<sub>3</sub>, substituted amino; adjacent pair(s) selected from R5-R12 may form a condensed ring; R12 = akoxyphehyl, alkylphenyl; R13 = nitrophenyl, cyanophenyl, halophenyl]. The photoreceptors show good sensitivity toward visible and near IR light and hence can be used in conventional copying machines and **semiconductor** laser printers.

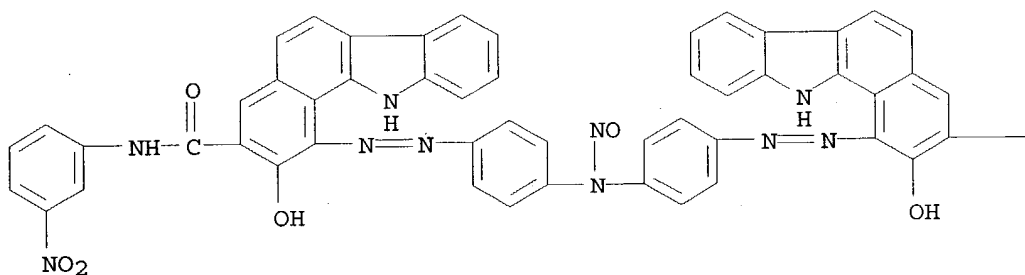
IT 117008-95-4

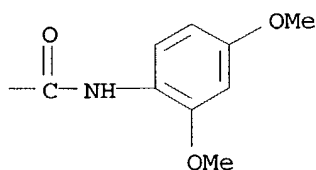
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrophotog. charge carrier-generating pigment)

RN 117008-95-4 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1-[[4-[[4-[[3-[[2,4-dimethoxyphenyl]amino]carbonyl]-2-hydroxy-11H-benzo[a]carbazol-1-yl]azo]phenyl]nitrosoamino]phenyl]azo]-2-hydroxy-N-(3-nitrophenyl)- (9CI)  
(CA INDEX NAME)

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IC ICM G03G005-06  
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 41  
 ST electrophotog photoconductor bisazo pigment; laser printer electrophotog photoreceptor  
 IT Electrophotographic photoconductors  
 (composite, charge carrier-generating bisazo pigments for)  
 IT 537-65-5, 4,4'-Diaminodiphenylamine  
 RL: USES (Uses)  
 (diazotization and coupling reaction of, electrophotog. charge carrier-generating pigment from)  
 IT 117008-87-4 117008-88-5 117008-89-6 117008-90-9 117008-91-0  
 117008-92-1 117008-93-2 117008-94-3 **117008-95-4**  
 117008-96-5 117008-97-6 117008-98-7 117008-99-8 117009-00-4  
 117009-01-5 117009-02-6 117009-03-7 117009-04-8 117009-05-9  
 117009-06-0  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrophotog. charge carrier-generating pigment)  
 IT 129-79-3, 2,4,7-Trinitro-9-fluorenone 25067-59-8, Poly(N-vinylcarbazole)  
 74677-70-6 83890-47-5 89115-10-6 90884-11-0  
 RL: USES (Uses)  
 (electrophotog. charge carrier-transporting layer containing)  
 IT 117008-86-3P  
 RL: PREP (Preparation)  
 (preparation of, as electrophotog. charge carrier-generating pigment)  
 IT 86-19-1 89548-73-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, electrophotog. charge carrier-generating pigment from)

L154 ANSWER 46 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1988:539074 CAPLUS

DOCUMENT NUMBER: 109:139074

TITLE: Electrophotographic photoreceptor for  
**semiconductor** laser containing fluorenebisazo  
 derivatives as charge-generating substance

INVENTOR(S): Haino, Kozo; Enomoto, Kazuhiro; Ito, Akira

PATENT ASSIGNEE(S): Mitsubishi Paper Mills, Ltd., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62286058	A2	19871211	JP 1986-129414	19860604
PRIORITY APPLN. INFO.:			JP 1986-129414	19860604

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The title photoreceptor has an elec. conductive support leaving a layer containing bisazo dyes (I) [R1-3 = H, alkyl, alkoxy, aryl; 2 of R1-3 may be bonded to form a condensed ring; R5-6 = H, halo, alkyl, alkoxy; X = O, S, NR4 (R4 = H, alkyl, aralkyl); Y = coupler residue of azo dye] or II [R1-2 = H, alkyl, alkoxy; R1 and R2 may be bonded to form a condensed ring; R3-4 = H, halo, alkyl, alkoxy; Y = coupler residue of azo dye; n = 0, 1]. The photoreceptor for **semiconductor** laser shows durability and stable characteristics on repeated use. Thus, Al-laminated polyester film was successively coated with a composition (A) Containing I (R1-6 = H; X = O,

Y =

Q, n = 0) and Vylon 200 and a composition (B) containing p-Et2NC6H4C:NNPh2 and polycarbonate to form a electrophotog. photoreceptor which showed high sensitivity.

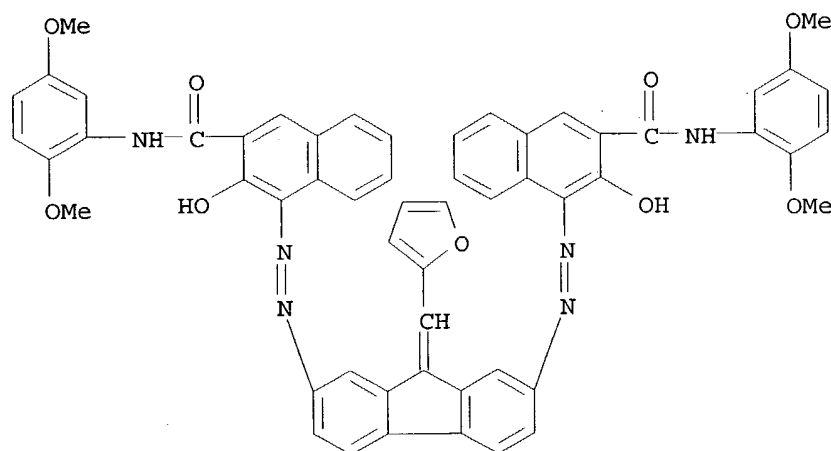
IT 112801-52-2 112801-56-6 112801-61-3

RL: USES (Uses)

(charge-generating substance, for electrophotog. photoreceptor for **semiconductor** laser)

RN 112801-52-2 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(2-furanylmethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)

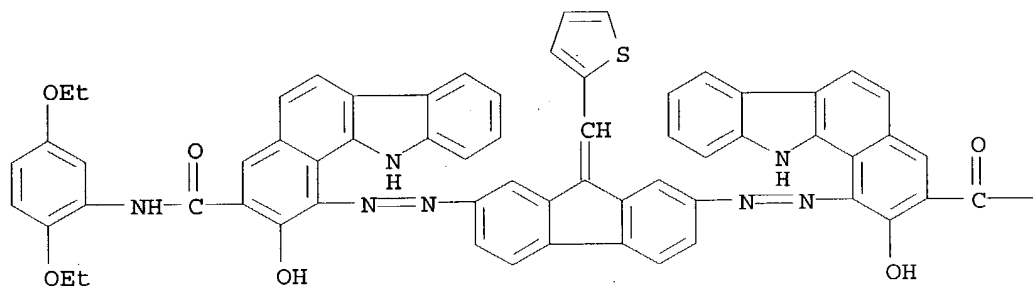


RN 112801-56-6 CAPLUS

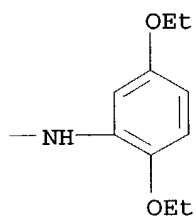
CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1'-[[9-(2-thienylmethylene)-9H-

fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-diethoxyphenyl)-2-hydroxy- (9CI)  
(CA INDEX NAME)

PAGE 1-A



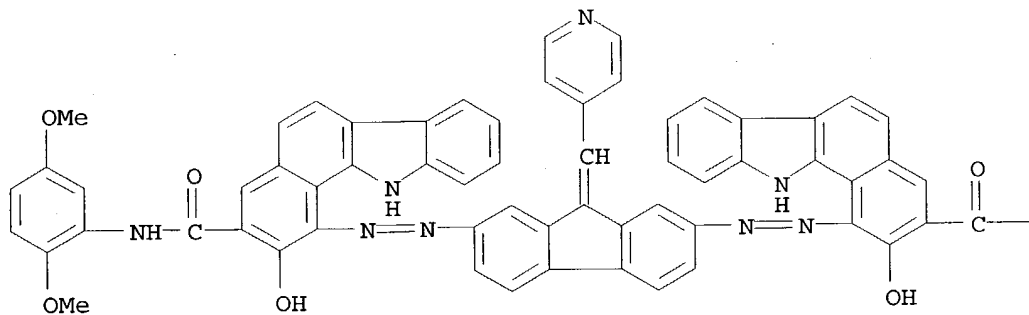
PAGE 1-B

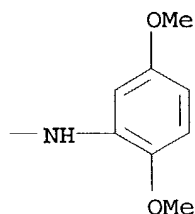


RN 112801-61-3 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1'-[[9-(4-pyridinylmethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-2-hydroxy- (9CI)  
(CA INDEX NAME)

PAGE 1-A





IC ICM G03G005-06  
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST electrophotog photoreceptor charge generator bisazofluorene;  
 photoconductor electrophotog fluorene bisazo deriv  
 IT Dyes, azo  
 (bis, fluorene derivs., charge-generating substance, for electrophotog.  
 photoreceptor for **semiconductor** laser)  
 IT Electrophotographic photoconductors  
 (fluorene bisazo derivs. as charge-generating substance for, for  
**semiconductor** laser)  
 IT 112801-47-5 112801-48-6 112801-50-0 112801-51-1 112801-52-2  
 112801-53-3 112801-54-4 112801-55-5 **112801-56-6**  
 112801-57-7 112801-58-8 112801-59-9 112801-60-2 **112801-61-3**  
 112801-62-4 112801-63-5 112801-64-6 112801-65-7 112801-67-9  
 112821-67-7 112821-68-8  
 RL: USES (Uses)  
 (charge-generating substance, for electrophotog. photoreceptor for  
**semiconductor** laser)  
 IT 57609-72-0 68189-23-1, p-Diethylaminobenzaldehyde diphenylhydrazone  
 85171-94-4  
 RL: USES (Uses)  
 (charge-transporting substance, for electrophotog. photoreceptor for  
**semiconductor** laser)

L154 ANSWER 47 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1988:483328 CAPLUS

DOCUMENT NUMBER: 109:83328

TITLE: Bisazo dye-containing electrophotographic  
 photoreceptor

INVENTOR(S): Sasaki, Masaomi; Shimada, Tomoyuki

PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 8

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----

JP 62273545	A2	19871127	JP 1986-118269	19860521
JP 08020740	B4	19960304		
US 4830943	A	19890516	US 1987-49298	19870513
US 5081233	A	19920114	US 1988-261269	19881024

PRIORITY APPLN. INFO.:

JP 1986-111287	19860515
JP 1986-111288	19860515
JP 1986-115762	19860520
JP 1986-118269	19860521
JP 1986-119269	19860526
JP 1986-119271	19860526
JP 1986-119272	19860526
US 1987-49298	19870513

AB An electrophotog. photoreceptor is comprised of a layer containing a bisazo dye having the formula p-(ArN:N)C<sub>6</sub>H<sub>4</sub>(CH:CH)<sub>4</sub>C<sub>6</sub>H<sub>4</sub>(N:NAr)-p [Ar = coupler moiety]. The bisazo dye is used as a charge-generating substance. The easily-fabricated photoreceptor is useful for laser printers. Also, the photoreceptor shows a flat sensitivity curve in the range of visible light and semiconductor laser emission.

IT 115626-25-0

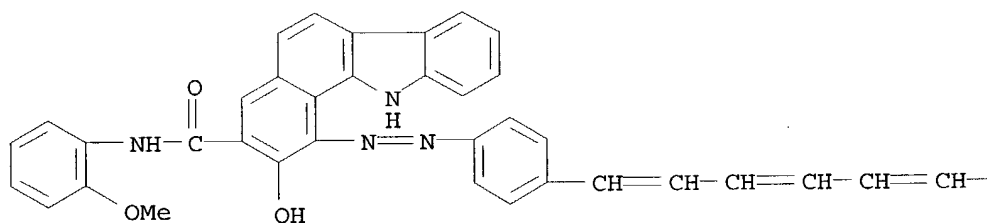
RL: USES (Uses)

(charge-generating substance, electrophotog. photoreceptor containing)

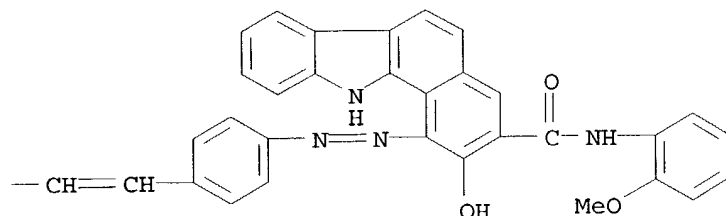
RN 115626-25-0 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1'-[1,3,5,7-octatetraene-1,8-diylbis(4,1-phenyleneazo)]bis[2-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)

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IC ICM G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog photoreceptor bisazo dye; bisazo electrophotog charge generating substance



## IT Electrophotographic photoconductors

(containing bisazo charge-generating substances for laser printers)

IT 115573-93-8 115626-14-7 115626-15-8 115626-16-9 115626-17-0  
 115626-21-6 115626-22-7 115626-23-8 115626-24-9 115626-25-0  
 115626-26-1 115626-27-2 115626-28-3 115626-29-4 115626-30-7  
 115626-31-8 115626-32-9 115626-33-0 115626-34-1 115626-35-2  
 115626-36-3 115626-37-4 115626-38-5 115626-39-6 115626-40-9  
 115626-41-0 115650-71-0 115654-84-7 115654-85-8

RL: USES (Uses)

(charge-generating substance, electrophotog. photoreceptor containing)

L154 ANSWER 48 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1987:205143 CAPLUS

DOCUMENT NUMBER: 106:205143

TITLE: Electrophotographic photoreceptors

INVENTOR(S): Watanabe, Kazumasa; Hirose, Hisahiro; Kinoshita, Akira; Yamazaki, Hiroshi

PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

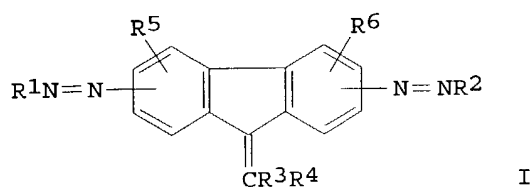
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61226755	A2	19861008	JP 1985-67337	19850329
JP 04015467	B4	19920318		

PRIORITY APPLN. INFO.:

JP 1985-67337 19850329

GI



AB Electrophotog. photoreceptors contain bisazo compds. of the formula I (R1, R2 = coupler moiety selected from naphthol, hydroxyanthracene, hydroxydibenzofuran, hydroxycarbazole, hydroxybenzoindole, hydroxybenzocarbazole, hydroxypyrazole, and hydroxynaphthalene-1,8-dicarboxylic imide moiety; R3 = H, halo, CN, alkyl, aryl, acyl; R4 = (un)substituted pyridyl, thiophenyl, furanyl, pyrrolyl; R5, R6 = H, C1-8 alkyl, C1-6 alkoxy, CN, halo, (un)substituted styryl). The bisazo compds. are especially useful as electrophotog. charge carrier-generating pigments, and the photoreceptors exhibit good sensitivity (especially thermal **semiconductor** lasers), low residual charge and good durability, and hence they are useful in laser printers.

IT 108185-41-7 108185-50-8

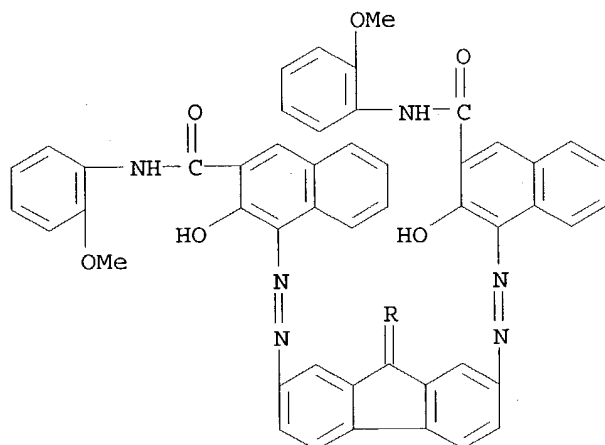
RL: TEM (Technical or engineered material use); USES (Uses)

(electrophotog. charge carrier-generating pigment)

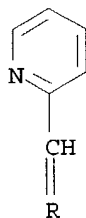
RN 108185-41-7 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(2-pyridinylmethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



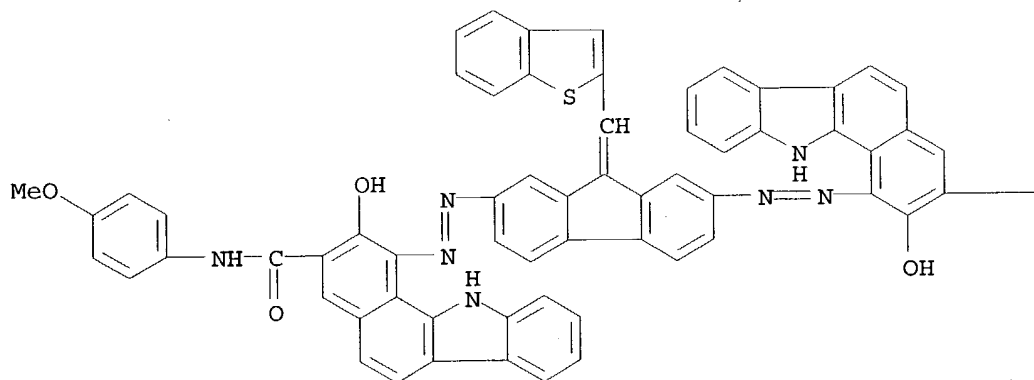
PAGE 2-A



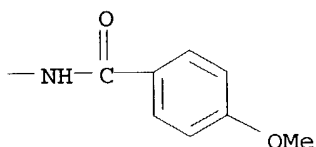
RN 108185-50-8 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1'-[[9-(benzo[b]thien-2-ylmethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[2-hydroxy-N-(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM G03G005-06  
ICA G03G005-04  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST electrophotog charge generating bisazo pigment; bisazofluorene pigment  
electrophotog charge generating; fluorene deriv electrophotog charge  
generating; photoconductor electrophotog composite  
IT Dyes, azo  
(bisazo, fluorene derivs. as, for electrophotog. uses)  
IT Electrophotographic photoconductors  
(composite, fluorene derivative type bisazo pigments for)  
IT 92-77-3, Naphthol AS  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(coupling reaction of, with diazotized diaminopyridylmethylidene fluorene)  
IT 5840-22-2, Naphthol ASSR  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(coupling reaction of, with diazotized diaminothiophenylmethylidene fluorene)  
IT 108185-41-7 108185-42-8 108185-43-9 108185-44-0  
108185-45-1 108185-46-2 108185-47-3 108185-48-4 108185-49-5  
108185-50-8 108185-51-9 108185-52-0  
RL: TEM (Technical or engineered material use); USES (Uses)

(electrophotog. charge carrier-generating pigment)

IT 4316-51-2 84746-59-8 87866-77-1 89114-76-1 89114-77-2 90510-68-2  
 93216-18-3 95458-93-8 96886-80-5 100463-43-2 100463-44-3  
 100463-45-4  
 RL: USES (Uses)

(electrophotog. charge carrier-transporting agent)

IT 108185-55-3P 108185-56-4P  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and diazotiazation-coupling reaction of)

IT 108185-53-1P 108185-54-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reduction of)

IT 108185-39-3P 108185-40-6P  
 RL: PREP (Preparation)  
 (preparation of, as electrophotog. charge carrier-generating pigment)

IT 98-03-3 1121-60-4, Pyridine-2-aldehyde  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with dinitrofluorene)

IT 5405-53-8, 2,7-Dinitrofluorene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with heterocycloaldehyde)

L154 ANSWER 49 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1987:76104 CAPLUS  
 DOCUMENT NUMBER: 106:76104  
 TITLE: Sensitive materials in electrophotography  
 INVENTOR(S): Ota, Masafumi  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61132953	A2	19860620	JP 1984-254727	19841201
JP 06001385	B4	19940105		
PRIORITY APPLN. INFO.:			JP 1984-254727	19841201
GI				

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Laminated electrophotog. sensitive materials with high sensitivity contain charge-generating layers containing the trisazo dyes I (R = 2-ethylphenyl, 4-methylphenyl, 2-methylphenyl, 4-methoxyphenyl, 4-ethylphenyl, 5-chloro-2-methylphenyl, 2-ethoxyphenyl, 2,5-dimethylphenyl, 2,4-dimethylphenyl) and charge-transport layers containing the triphenylamines II (R1-R3 = H, lower alkyl, lower alkoxy, Ph, phenoxy, Cl). Thus, a photosensitive material prepared by using a charge-generating layer containing

(R = 2-ethylphenyl) and a charge-transport layer containing II (R1 = 4-Me; R2 = 4'-Me; R3 = 4''-Me) was used in electrostatic copying to show high sensitivity in the visible light region, excellent sensitivity in **semiconductor**-laser wavelength region (800 nm), and clear images on 10,000 sheets.

IT 84809-03-0

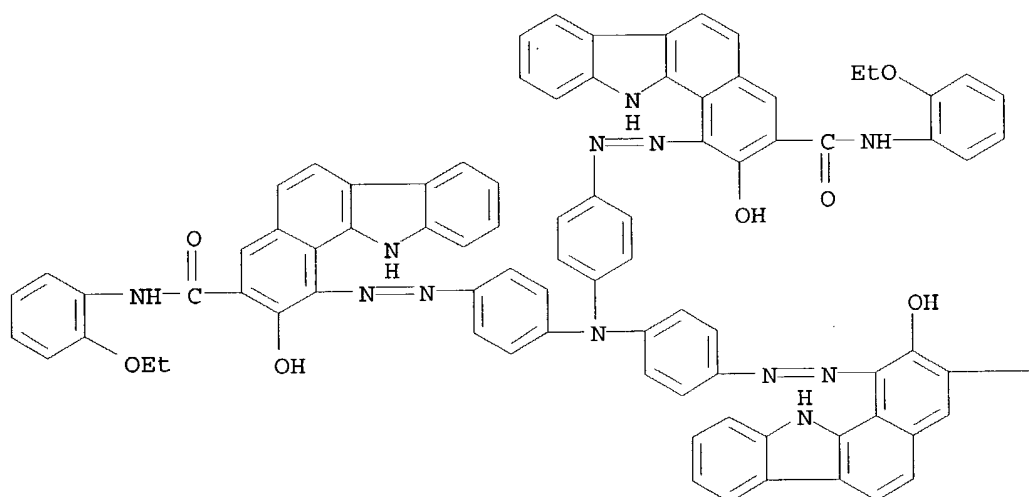
RL: USES (Uses)

(electrophotog. photoconductor with charge-generating material from)

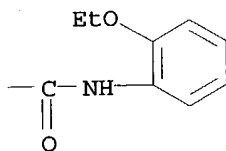
RN 84809-03-0 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1',1''-[nitrilotris(4,1-phenyleneazo)] tris[N-(2-ethoxyphenyl)-2-hydroxy- (9CI) (CA INDEX NAME)

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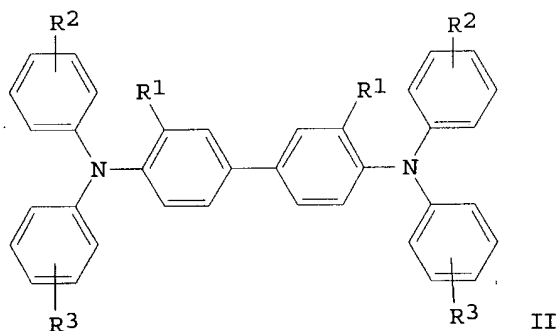
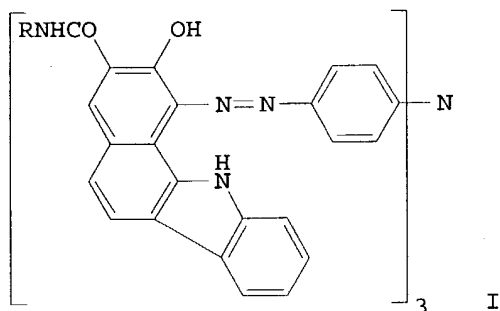


IC ICM G03G005-04

ICS H01L031-08  
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST electrophotog sensitive material high sensitivity; azo dye electrophotog sensitive material; phenylamine electrophotog sensitive material  
 IT Dyes, azo  
     (tris-, electrophotog. photoconductor with charge-generating material from)  
 IT Electrophotographic photoconductors  
     (with charge-generating material from trisazo dye and charge-transport material from triphenylamine derivative)  
 IT 79900-47-3 84809-00-7 84809-01-8 84809-02-9 84809-03-0  
     84809-04-1 84809-13-2 84814-51-7 84814-52-8 84814-53-9  
 RL: USES (Uses)  
     (electrophotog. photoconductor with charge-generating material from)  
 IT 1159-53-1 4316-51-2 4316-53-4 20440-94-2 20440-95-3 20676-79-3  
     36809-23-1 106614-58-8 106614-59-9 106614-60-2 106614-61-3  
     106614-62-4 106614-63-5 106614-64-6 106614-65-7  
 RL: USES (Uses)  
     (electrophotog. photoconductor with charge-transport material from)

L154 ANSWER 50 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1986:635789 CAPLUS  
 DOCUMENT NUMBER: 105:235789  
 TITLE: Electrophotographic phtoreceptors  
 INVENTOR(S): Ota, Masafumi  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
           CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 61124949	A2	19860612	JP 1984-246918	19841121
JP 05043108	B4	19930630		
PRIORITY APPLN. INFO.:			JP 1984-246918	19841121
GI				



AB The claimed composite electrophotog. photoreceptors contain I (R = 2-ethylphenyl, 4-methylphenyl, 2-methylphenyl, Ph, 4-methoxyphenyl, 4-ethylphenyl, 2-ethoxyphenyl, 2-methyl-5-chlorophenyl, 2,5-dimethylphenyl, 2,4-dimethylphenyl) in the charge carrier-generating layer, and also contain II (R1 = H, Cl, Me, MeO; R2, R3 = H, Cl, lower alkyl, lower alkoxy) in the charge carrier-transporting layer. The photoreceptors show high sensitivity toward visible light and **semiconductor** lasers, and also exhibit good durability.

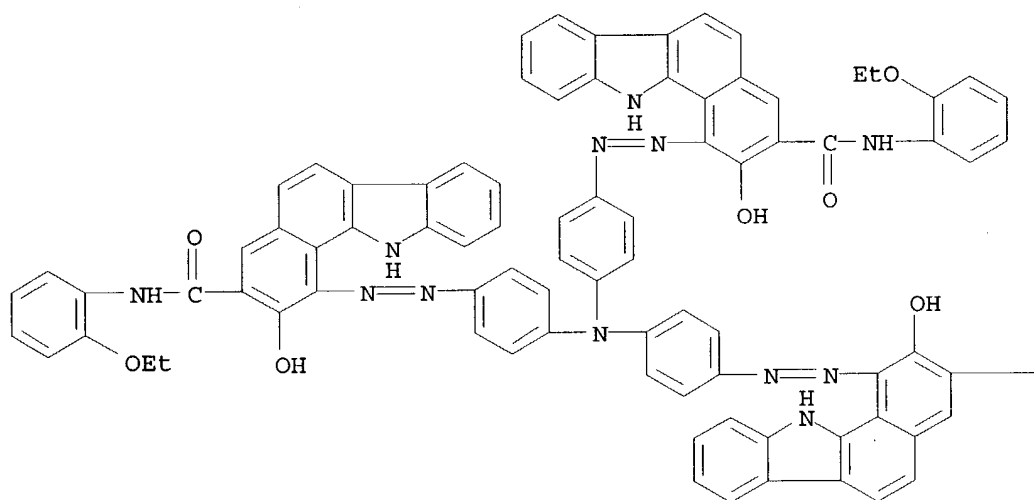
IT 84809-03-0

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrophotog. charge carrier-generating pigment)

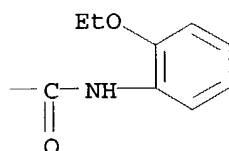
RN 84809-03-0 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1',1''-[nitrilotris(4,1-phenyleneazo)]tris[N-(2-ethoxyphenyl)-2-hydroxy- (9CI) (CA INDEX NAME)

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IC ICM G03G005-04  
ICS H01L031-08  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST electrophotog composite photoconductor; trisazo pigment electrophotog charge generating; benzidine electrophotog charge transporting agent  
IT Photography, electro-, photoconductors  
(composite, charge carrier-generating trisazo pigments and charge carrier-transporting benzidine derivs. for)  
IT 79900-47-3 84809-00-7 84809-01-8 84809-02-9 **84809-03-0**  
84809-04-1 84809-13-2 84814-51-7 84814-52-8 84814-53-9  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrophotog. charge carrier-generating pigment)



IT 76185-65-4 105465-12-1 105465-13-2 105465-14-3 105465-15-4  
 105465-16-5 105465-17-6 105465-18-7 105465-19-8 105465-20-1  
 105465-21-2 105465-22-3 105465-23-4 105465-24-5 105482-14-2

RL: USES (Uses)

(electrophotog. charge carrier-transporting agent)

L154 ANSWER 51 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1986:99448 CAPLUS

DOCUMENT NUMBER: 104:99448

TITLE: Electrophotographic photosensitive materials

PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102638	A2	19850606	JP 1983-210626	19831109
JP 03037180	B4	19910604		

PRIORITY APPLN. INFO.: JP 1983-210626 19831109

GI For diagram(s), see printed CA Issue.

AB Composite electrophotog. photosensitive materials contain a bisazo compound I (R = II, III, IV, V; A = aromatic carbocycle or heterocycle; R1 = H, OH, CO2R5, SO3H, carbamoyl, sulfamoyl; R2 = H, alkyl, amino, carbamoyl, CN, CO2R5; R3 = aryl; R4 = alkyl, aralkyl, aryl; R5 = organic moiety) in the charge-carrier-generating layer and a hydrazone derivative VI (R6 = naphthyl; R7 = alkyl, aralkyl, aryl; R8 = H, alkyl, alkoxy; R9, R10 = alkyl, aralkyl, aryl) in the charge-carrier-transfer layer. The electrophotog. photosensitive materials show high sensitivity (especially toward **semiconductor** lasers), thermal stability and durability. Thus, an Al-laminated polyester film support was coated with a composition containing I

(R = VII) and poly(vinyl butyral) and coated with a composition containing VI (R6 = 2-naphthyl; R7 = Ph; R8 = H; R9 = R10 = Pr) and a polycarbonate resin to give an electrophotog. plate having excellent sensitivity toward GaAs laser beam and good durability.

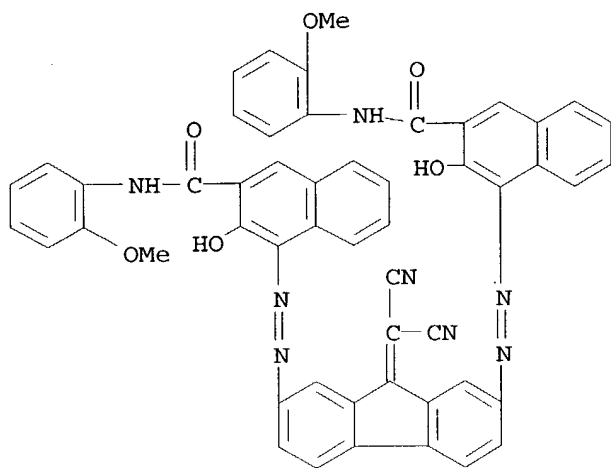
IT 93754-45-1 97816-78-9 97931-70-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

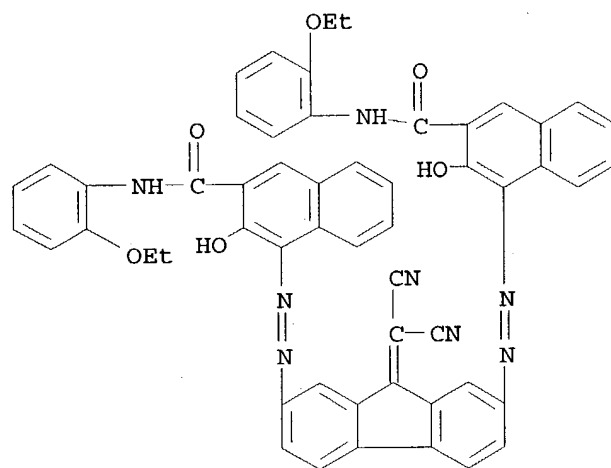
RN 93754-45-1 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)



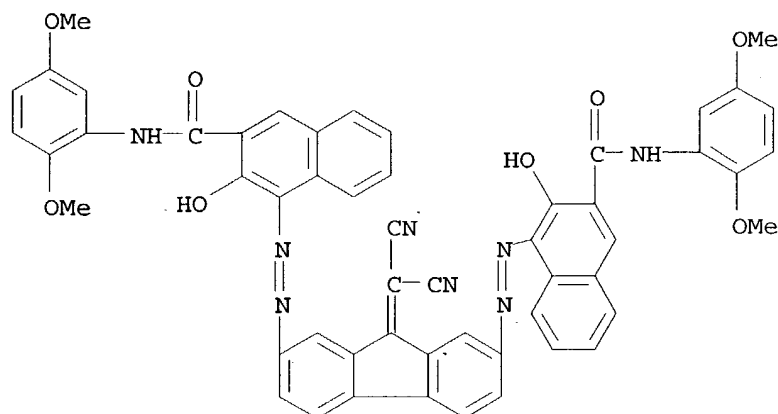
RN 97816-78-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2-ethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



RN 97931-70-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04  
ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating bisazo pigment; hydrazone electrophotog charge transfer agent

IT Dyes  
(bisazo, electrophotog. charge-carrier-generating)

IT Photography, electro-, photoconductors  
(composite, charge-carrier-generating bisazo pigments and hydrazone derivative type charge-carrier-transfer agents for)

IT 88701-08-0 93754-45-1 93754-52-0 97008-60-1  
97816-78-9 97931-70-9  
RL: USES (Uses)  
(electrophotog. charge-carrier-generating pigment)

IT 83890-46-4 83890-48-6 83890-51-1 83890-53-3 83890-57-7  
83890-58-8 84159-26-2  
RL: USES (Uses)  
(electrophotog. charge-carrier-transfer agent)

IT 88066-48-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and diazotization of)

IT 15538-90-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reduction of)

IT 88701-07-9P  
RL: PREP (Preparation)  
(preparation of, as electrophotog. charge-carrier-generating pigment)

IT 109-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dinitrofluorenone)

IT 92-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with hexafluorophosphate of diaminodicyanomethylidene fluorene dihydrochloride)

IT 31551-45-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with malononitrile)

L154 ANSWER 52 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:586875 CAPLUS  
DOCUMENT NUMBER: 103:186875  
TITLE: Electrophotographic photosensitive materials  
PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102640	A2	19850606	JP 1983-210628	19831109

PRIORITY APPLN. INFO.: JP 1983-210628 19831109

GI For diagram(s), see printed CA Issue.

AB Electrophotog. photosensitive layers contain particles (average particle size  $\leq 2\mu$ ) of a bisazo dye I (R = II, III, IV, V; A = aromatic carbocycle, heterocycle; R1 = H, OH, CO2R5, SO3H, carbamoyl, sulfamoyl; R2 = H, alkyl, amino, carbamoyl, O2R5, CN; R3 = aryl; R4 = alkyl, aralkyl, aryl; R5 = organic moiety). Thus, an Al-laminated polyester film support was coated with a composition containing poly(vinyl butylral) and I (R = VI) particles

(average particle size  $1.0\mu$ ) and coated with a composition containing 3-(p-methoxystyryl)-9-(p-methoxyphenyl)carbazole and a polycarbonate resin to give an electrophotog. plate which showed high sensitivity to semiconductor lasers and had good durability.

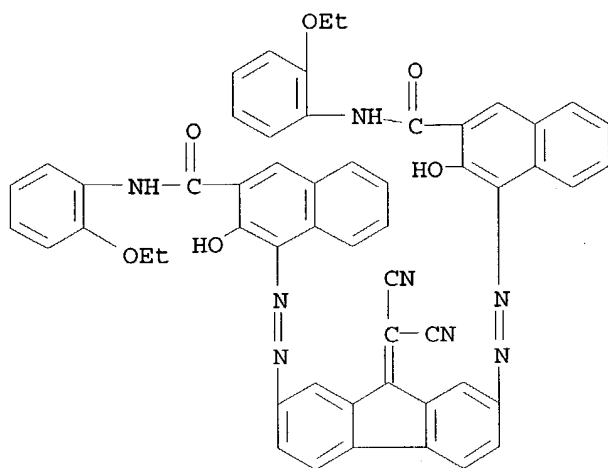
IT 97816-78-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment, sensitivity in relation to particle size of)

RN 97816-78-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2-ethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



- IC ICM G03G005-06  
ICS C09B035-039; H01L031-08
- CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST electrophotog charge generating bisazo pigment
- IT Photography, electro-, photoconductors  
(composite, charge carrier-generating bisazo pigments for, **semiconductor** laser sensitivity in relation to particle size of)
- IT 88701-08-0 93754-52-0 97816-78-9 98058-53-8  
RL: USES (Uses)  
(electrophotog. charge-carrier-generating pigment, sensitivity in relation to particle size of)
- IT 1159-53-1 68189-23-1 84746-59-8  
RL: USES (Uses)  
(electrophotog. charge-carrier-transfer agent)
- IT 88066-48-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and diazotization of)
- IT 15538-90-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reduction of)
- IT 88701-07-9P  
RL: PREP (Preparation)  
(preparation of, as electrophotog. charge-carrier-generating pigment)
- IT 109-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dinitrofluorenone)
- IT 92-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with hexafluorophosphate of diazotized diaminodicyanomethylidene fluorene dihydrochloride)
- IT 31551-45-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with malononitrile)

L154 ANSWER 53 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:569860 CAPLUS  
 DOCUMENT NUMBER: 103:169860  
 TITLE: Electrophotographic plates  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60123848	A2	19850702	JP 1983-232438	19831209
PRIORITY APPLN. INFO.:			JP 1983-232438	19831209

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB An electrophotog. plate with improved durability and sensitivity to **semiconductor** laser is obtained by forming on an elec. conductive support a charge carrier-generating layer containing a trisazo pigment of the formula I (R = 2-ethylphenyl, 4-methylphenyl, 2-methylphenyl, ph, 4-methoxyphenyl, 4-ethylphenyl, 2-methyl-5-chlorophenyl, 2-ethoxyphenyl, 2,5-dimethylphenyl, 2,4-dimethylphenyl) and a charge carrier-transporting layer containing a carbazole compound of the formula II (R1 = low alkyl, aryl, benzyl; R2 = H, low alkyl, low alkoxy, halo, NO2, NH2, low alkyl- or benzyl-substituted amino; n = 1, 2).

IT 84809-03-0

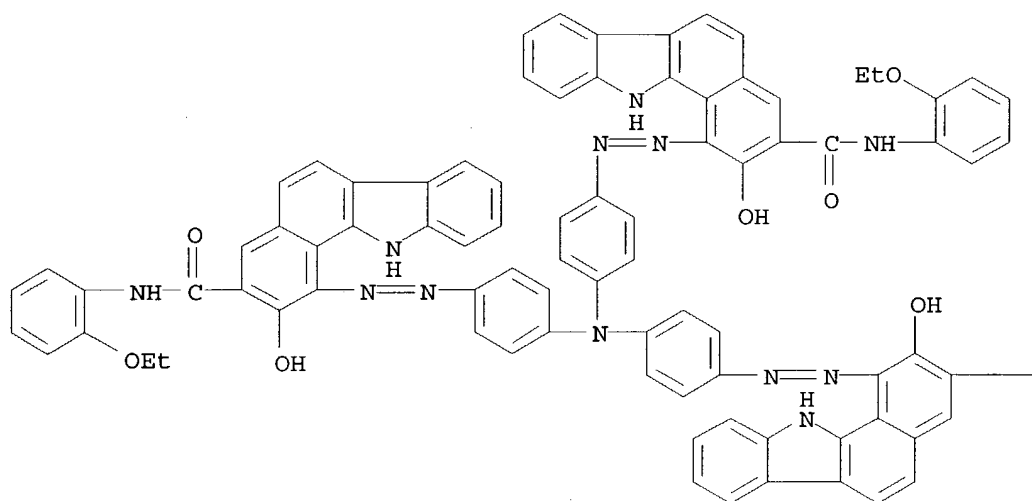
RL: USES (Uses)

(electrophotog. composite photoconductors with charge carrier-generating layer containing)

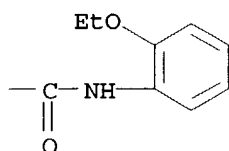
RN 84809-03-0 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1',1''-[nitrilotris(4,1-phenyleneazo)]tris[N-(2-ethoxyphenyl)-2-hydroxy- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM G03G005-04  
ICS H01L031-08  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST electrophotog composite photoconductor trisazo carbazole  
IT Polyesters, uses and miscellaneous  
RL: USES (Uses)  
(binders, electrophotog. composite photoconductors with charge carrier-generating layer containing)  
IT Photography, electro-, photoconductors  
(composite, with charge carrier-generating layer containing trisazo pigments and charge carrier-transporting layer containing carbazole compds.)

IT Siloxanes and Silicones, uses and miscellaneous  
 RL: USES (Uses)  
 (oil, electrophotog. composite photoconductors with charge carrier-transporting layer containing)

IT Photography, electro-, plates  
 (with charge carrier-generating layer containing trisazo pigments and charge carrier-transporting layer containing carbazole compds.)

IT Vinyl acetal polymers  
 RL: USES (Uses)  
 (butyrals, binders, electrophotog. composite photoconductors with charge carrier-generating layer containing)

IT 24936-68-3, uses and miscellaneous  
 RL: USES (Uses)  
 (binders, electrophotog. composite photoconductors with charge carrier-transporting layer containing)

IT 79900-47-3 84809-00-7 84809-01-8 84809-02-9 **84809-03-0**  
 84809-04-1 84809-13-2 84814-51-7 84814-52-8 84814-53-9  
 RL: USES (Uses)  
 (electrophotog. composite photoconductors with charge carrier-generating layer containing)

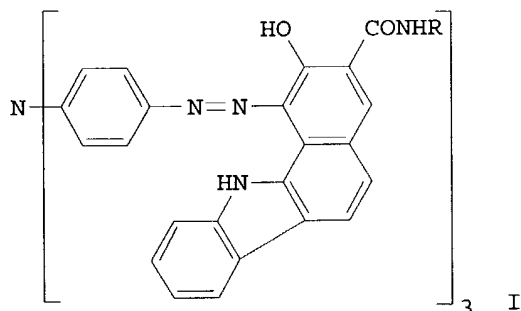
IT 86230-10-6 86230-11-7 86230-12-8 86230-14-0 95165-73-4  
 98517-07-8 98517-08-9 98517-09-0 98517-10-3 98517-11-4  
 98517-12-5 98517-13-6 98517-14-7 98517-15-8 98517-16-9  
 98517-17-0 98517-18-1 98517-19-2 98517-20-5  
 RL: USES (Uses)  
 (electrophotog. composite photoconductors with charge carrier-transporting layer containing)

L154 ANSWER 54 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:550929 CAPLUS  
 DOCUMENT NUMBER: 103:150929  
 TITLE: Composite electrophotographic photosensitive materials  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60104952	A2	19850610	JP 1983-213837	19831114
JP 05046939	B4	19930715		
PRIORITY APPLN. INFO.:			JP 1983-213837	19831114
GI				





AB Composite electrophotog. photosensitive materials contain trisazo compound I (R = 2-EtC<sub>6</sub>H<sub>4</sub>, 4-MeC<sub>6</sub>H<sub>4</sub>, 2-MeC<sub>6</sub>H<sub>4</sub>, Ph, 4-MeOC<sub>6</sub>H<sub>4</sub>, 4-EtC<sub>6</sub>H<sub>4</sub>, 2-Me-5-ClC<sub>6</sub>H<sub>4</sub>, 2-EtOC<sub>6</sub>H<sub>5</sub>, 2,5-dimethylphenyl, 2,4-dimethylphenyl) in the charge-carrier-generating layer and a styryl compound R<sub>1</sub>CH:CR<sub>2</sub>(CH:CH)<sub>n</sub>ZNR<sub>3</sub>R<sub>4</sub> (II:R<sub>1</sub> = aryl; R<sub>2</sub>,R<sub>3</sub>, R<sub>4</sub> = H, alkyl, aryl; Z = arylene; N = 0, 1) in the charge-carrier-transfer layer. The electrophotog. materials exhibit good sensitivity to entire visible light and **semiconductor** lasers, and also have good durability. Thus, an Al-laminated polyester film support was coated with a composition containing I (R = 2-EtC<sub>6</sub>H<sub>4</sub>) and poly(vinyl carbazole), and coated with a composition containing II(R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> = Ph; R<sub>2</sub> = H; Z = p-C<sub>6</sub>H<sub>4</sub>; n = 0) and a polycarbonate resin to give an electrophotog. plate having excellent sensitivity.

IT 84809-03-0

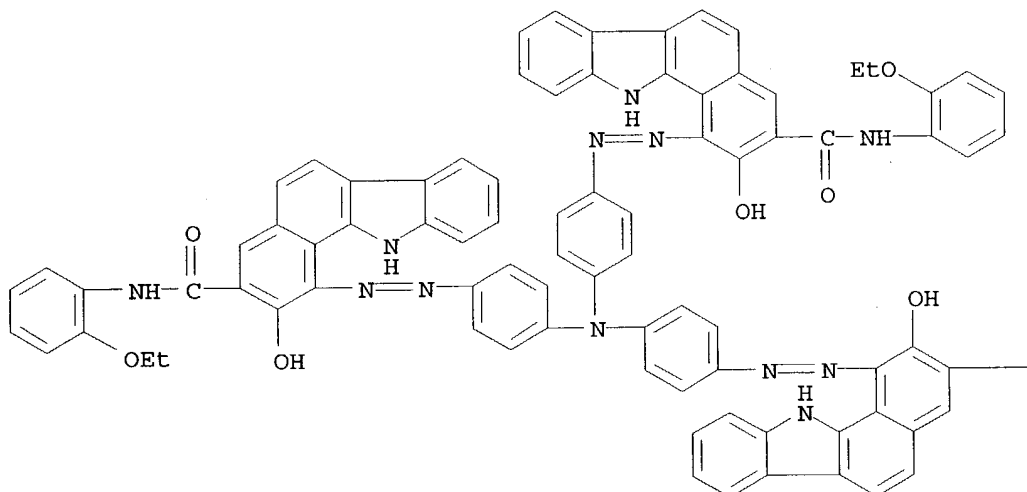
RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

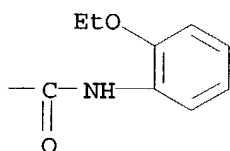
RN 84809-03-0 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1',1''-[nitrilotris(4,1-phenyleneazo)] tris[N-(2-ethoxyphenyl)-2-hydroxy- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM G03G005-04  
ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating trisazo pigment; styryl compd charge transfer agent

IT Photography, electro-, photoconductors  
(composite, charge-carrier-generating trisazo pigments and charge-carrier-transfer agents for)

IT Dyes, azo  
(tris-, electrophotog. charge-carrier-generating)

IT 79900-47-3 84809-00-7 84809-01-8 84809-02-9 **84809-03-0**  
84809-04-1 84809-13-2 84814-51-7 84814-52-8 84814-53-9  
RL: USES (Uses)  
(electrophotog. charge-carrier-generating pigment)

IT 61600-38-2 89114-71-6 89114-74-9 92003-09-3 93216-13-8  
93216-20-7 93216-31-0 95304-31-7 98094-47-4 98094-48-5  
98094-49-6 98094-50-9 98094-51-0 98094-52-1 98094-53-2  
98094-54-3 98094-55-4 98094-56-5 98094-57-6 98094-58-7  
98113-93-0  
RL: USES (Uses)  
(electrophotog. charge-carrier-transfer agent)

L154 ANSWER 55 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:513333 CAPLUS

DOCUMENT NUMBER: 103:113333

TITLE: Electrophotographic photosensitive materials

PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102639	A2	19850606	JP 1983-210627	19831109
JP 03037178	B4	19910604		

PRIORITY APPLN. INFO.: JP 1983-210627 19831109

GI For diagram(s), see printed CA Issue.

AB Composite electrophotog. photosensitive materials contain a bisazo pigment I (R = II, III, IV, V; A = carbocyclic or heterocyclic aromatic ring; R1 = H, OH, CO2R5, SO3H, carbamoyl, sulfamoyl; R2 = H, alkyl, amino, carbamoyl, CO2R5, CN; R3 = aryl; R4 = alkyl, aralkyl, aryl; R5 = organic moiety) in the charge-carrier-generating layer and a hydrazone compound VI (R6 = Me, Et, HOCH2CH2, ClCH2CH2; R7 = Me, Et, Ph, PhCH2) in the charge-carrier-transfer layer. The photosensitive materials show good sensitivity (especially toward **semiconductor** lasers), good thermal stability and good durability.

Thus, an Al-laminated polyester film support was coated with a composition containing I (R = VII) and poly(vinyl butyral) and coated with a composition

VI (R6 = R7 = Et) and a polycarbonate resin to give a composite electrophotog. plate which showed excellent sensitivity toward GaAs laser beam and good durability.

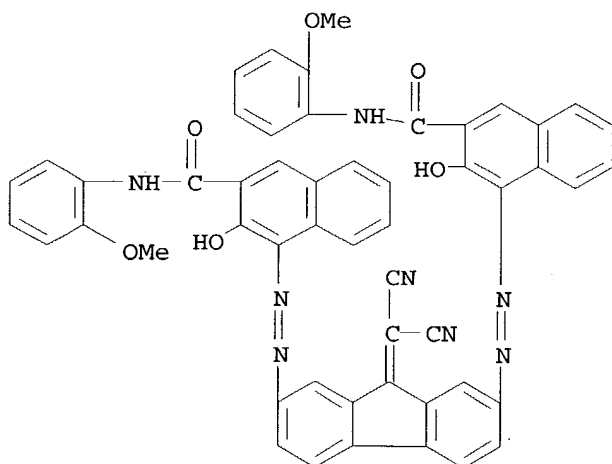
IT 93754-45-1 97816-78-9 97931-70-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

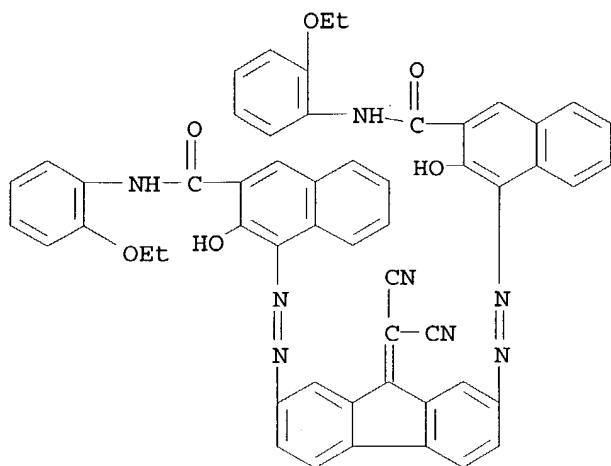
RN 93754-45-1 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)



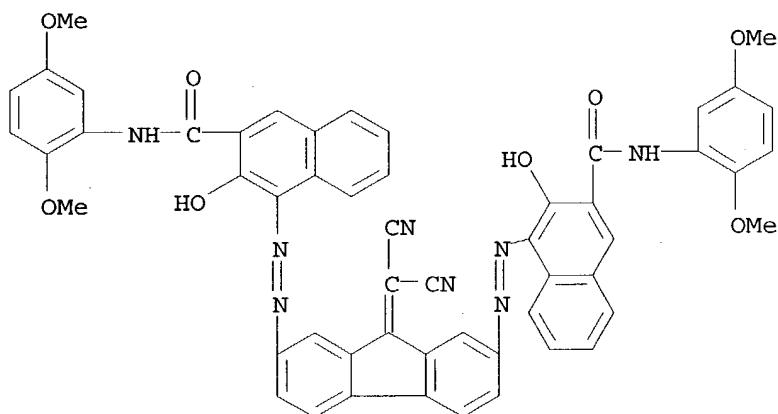
RN 97816-78-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2-ethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



RN 97931-70-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04

ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating bisazo pigment; hydrazone electrophotog charge transfer agent

IT Dyes

(bisazo, electrophotog. charge-carrier-generating)

IT Photography, electro-, photoconductors

(composite, charge-carrier-generating bisazo pigments and hydrazone derivative type charge-carrier-transfer agents for)

IT 88701-08-0 93754-45-1 93754-52-0 97008-60-1

97816-78-9 97931-70-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

IT 75232-44-9 75238-79-8 75293-65-1 75293-67-3 84678-52-4  
 92827-95-7 95905-90-1 98058-54-9  
 RL: USES (Uses)  
 (electrophotog. charge-carrier-transfer agent)

IT 88066-48-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and diazotization of)

IT 15538-90-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reduction of)

IT 88701-07-9P  
 RL: PREP (Preparation)  
 (preparation of, as electrophotog. charge-carrier-generating pigment)

IT 109-77-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with dinitrofluorenone)

IT 92-77-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with hexafluorophosphate of diazotized  
 diaminodicyanomethylidenefluorene dihydrochloride)

IT 31551-45-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with malononitrile)

L154 ANSWER 56 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1985:513332 CAPLUS  
 DOCUMENT NUMBER: 103:113332  
 TITLE: Electrophotographic photosensitive materials  
 PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102637	A2	19850606	JP 1983-210625	19831109
JP 03037177	B4	19910604		

PRIORITY APPLN. INFO.: JP 1983-210625 19831109

GI For diagram(s), see printed CA Issue.

AB Composite electrophotog. photosensitive materials contain a bisazo pigment  
 I (R = II, III, IV, V; A = aromatic carbocyclic or heterocyclic ring; R1 = H,  
 OH, CO2R5, SO3H, carbamoyl, sulfamoyl; R2 = H, alkyl, amino, CO2R5,  
 carbamoyl, CN; R3 = aryl; R4 = alkyl, aralkyl, aryl; R5 = organic moiety) in  
 the charge carrier-generating layer and a pyrazoline derivative VI (R6, R7, R8  
 = aryl; R9, R10 = H, C1-4 alkyl, aryl, aralkyl; R9 and R10 can not be H  
 simultaneously; n = 0, 1; when n = 0, R9 ≠ H) in the charge  
 carrier-transfer layer. The electrophotog. materials show good  
 sensitivity toward lights in wide wavelength region and also show good  
 thermal stability and durability. Thus, an Al-laminated film support was  
 coated with a subbing layer, then coated with a composition containing I (R =

VII)

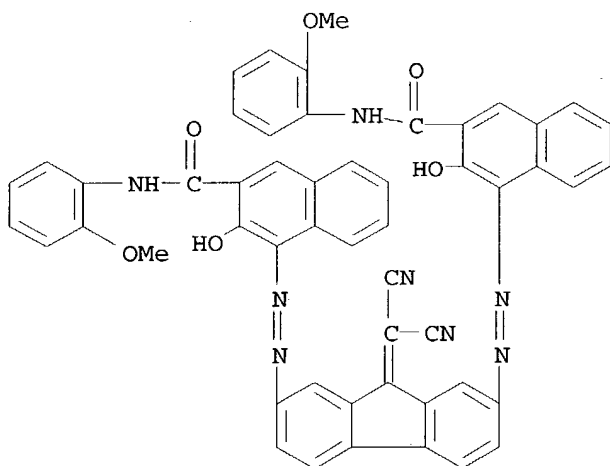
and poly(vinyl butyral), and coated with a composition containing polycarbonate resin and VI (R6 = p-MeOC6H4; R7 = Ph; R8 = p-Me2NC6H4; R9 = Me; R10 = H; n = 1) to give an electrophotog. plate which showed good sensitivity to semiconductor laser and good durability.

IT 93754-45-1 97931-70-9

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrophotog. charge carrier-generating pigment)

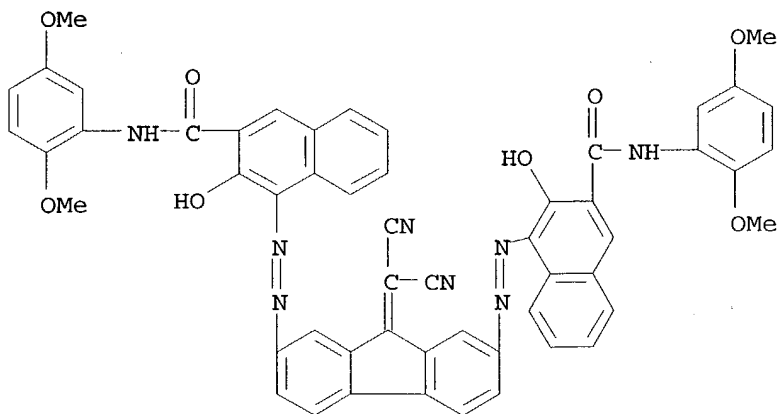
RN 93754-45-1 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 97931-70-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04

ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating bisazo pigment; pyrazoline electrophotog charge transfer agent

IT Dyes  
(bisazo, electrophotog. charge-carrier-generating)

IT Photography, electro-, photoconductors  
(composite, charge carrier-generating bisazo pigments and pyrazoline derivative type charge carrier-transfer agents for)

IT 93754-45-1 93754-52-0 97008-60-1 97931-70-9  
98058-56-1  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrophotog. charge carrier-generating pigment)

IT 74317-73-0 90053-81-9 90053-82-0 96358-29-1 96358-33-7  
98058-57-2 98058-58-3 98058-59-4  
RL: USES (Uses)  
(electrophotog. charge carrier-transfer agent)

IT 88066-48-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and diazotization of)

IT 15538-90-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reduction of)

IT 88701-07-9P  
RL: PREP (Preparation)  
(preparation of, as electrophotog. charge carrier-generating pigment)

IT 109-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dinitrofluorenone)

IT 92-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with hexafluorophosphate of diazotized diaminodicyanomethylidene fluorene dihydrochloride)

IT 31551-45-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with malononitrile)

L154 ANSWER 57 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:513331 CAPLUS  
DOCUMENT NUMBER: 103:113331  
TITLE: Electrophotographic photosensitive materials  
PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102636	A2	19850606	JP 1983-210624	19831109
JP 03037179	B4	19910604		
PRIORITY APPLN. INFO.:			JP 1983-210624	19831109

GI For diagram(s), see printed CA Issue.

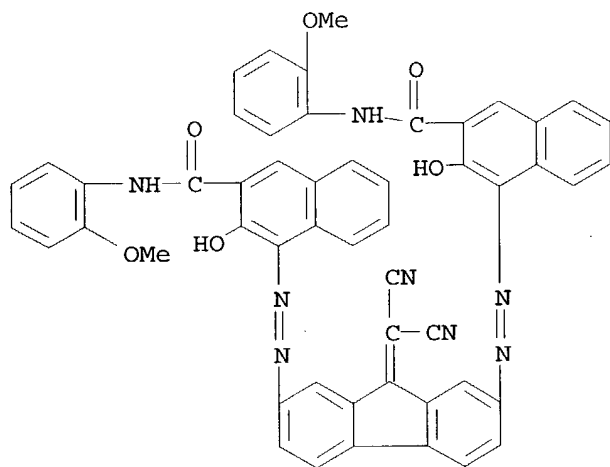
AB Composite electrophotog. photosensitive materials contain a bisazo compound I (R = II, III, IV, V; A = arom or heterocyclic ring; R1 = H, OH, CO2R5, SO3H, carbamoyl, sulfamoyl; R2 = H, alkyl, amino, carbamoyl, CO2R5, CN; R3 = aryl; R4 = alkyl, aralkyl, aryl; R5 = organic moiety) in the charge carrier-generating layer and a hydrazone compound VI (R6, R7 = H, halo; R8, R9 = aryl; Z = arylene) in the charge carrier-transfer layer. The photosensitive materials exhibit good sensitivity to light within a wide wavelength region and good thermal stability and light-induced degradation resistance. Thus, an Al-laminated film support was coated with a subbing layer, then coated with a composition containing I (R = VII) and poly(vinyl butyral), and coated with a composition containing VI (R6 = R7 = H; R8 = R9 = p-MeC6H4; Z = p-C6H4) and Panlite 1250 (a polycarbonate resin) to give an electrophotog plate having excellent sensitivity (especially toward **semiconductor** lasers) and durability.

IT 93754-45-1 97816-78-9 97931-70-9

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrophotog charge carrier-generating pigment)

RN 93754-45-1 CAPLUS

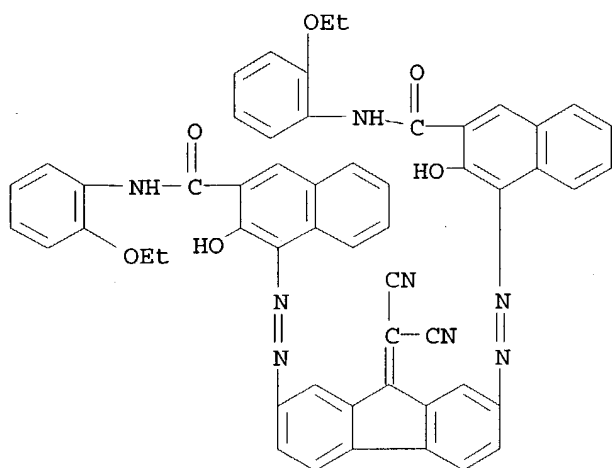
CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 97816-78-9 CAPLUS

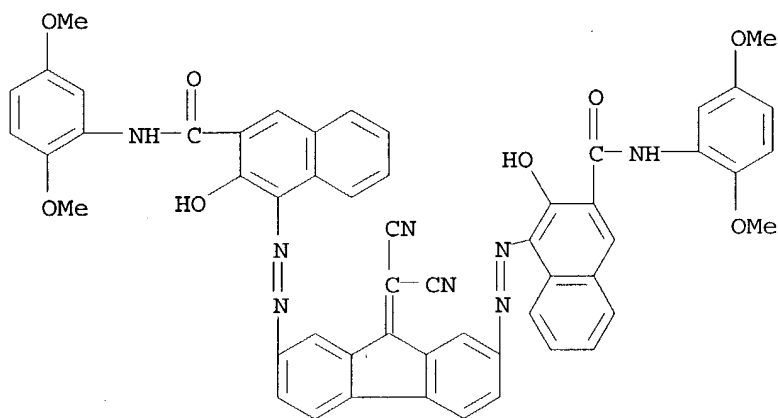
CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2-ethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)





RN 97931-70-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04

ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge carrier generating pigment; bisazo pigment  
electrophotog charge generator; hydrazone electrophotog charge transfer agent

IT Dyes

(bisazo, electrophotog. charge carrier-generating)

IT Photography, electro-, photoconductors

(composite, charge carrier-generating bisazo pigments and hydrazone derivative charge carrier-transfer agents for)

IT 93754-45-1 93754-52-0 97008-60-1 97816-78-9

97931-70-9

RL: TEM (Technical or engineered material use); USES (Uses)

(electrophotog charge carrier-generating pigment)

IT 84285-20-1 84285-21-2 84285-24-5 92633-74-4 92633-75-5  
98058-55-0 98078-01-4  
RL: USES (Uses)  
(electrophotog. charge carrier-transfer agent)

IT 88066-48-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and diazotization of)

IT 15538-90-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reduction of)

IT 88701-07-9P  
RL: PREP (Preparation)  
(preparation of, as electrophotog. charge carrier-generating pigment)

IT 109-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dinitrofluorenone)

IT 92-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with hexafluorophosphate of diazotized  
diaminodicyanomethylidenefluorene dihydrochloride)

IT 31551-45-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with malononitrile)

L154 ANSWER 58 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:513328 CAPLUS

DOCUMENT NUMBER: 103:113328

TITLE: Electrophotographic photosensitive materials

PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102635	A2	19850606	JP 1983-210623	19831109
JP 02009339	B4	19900301		
US 4599287	A	19860708	US 1984-669696	19841107
EP 144791	A2	19850619	EP 1984-113489	19841108
EP 144791	A3	19860205		
EP 144791	B1	19920115		

R: DE, FR, GB

PRIORITY APPLN. INFO.:	JP 1983-210622	19831109
	JP 1983-210623	19831109
	JP 1984-108226	19840528
	JP 1984-108228	19840528

GI For diagram(s), see printed CA Issue.

AB Composite electrophotog. photosensitive materials contain a bisazo compound  
I (R = II, III, IV, V; A = arom carbocycle, heterocycle; R1 = H, OH,

CO<sub>2</sub>R<sub>5</sub>, SO<sub>3</sub>H, carbamoyl, sulfamoyl; R<sub>2</sub> = H, alkyl, amino, carbamoyl, CO<sub>2</sub>R<sub>5</sub>, CN; R<sub>3</sub> = aryl; R<sub>4</sub> = alkyl, aralkyl, aryl; R<sub>5</sub> = organic moiety) in the charge carrier-generating layer and  $\geq 1$  of hydrazone compound VI and VII (R<sub>6</sub>, R<sub>9</sub> = aryl, heterocyclyl; R<sub>7</sub>, R<sub>10</sub> = H, alkyl, aryl; R<sub>8</sub> = H, halo, alkyl, alkoxy, substituted amino; R<sub>11</sub> = H, halo, CN, alkyl, alkoxy, substituted amino; n, m = 0, 1) in the charge carrier-transfer layer. The electrophotog. photosensitive materials have high sensitivity, especially

toward

**semiconductor** lasers, and good durability. Thus, an Al-laminated polyester film support was coated with a subbing layer, then coated with a composition containing I (R = VIII) and poly(vinyl butyral), and coated with a composition containing VI [R<sub>6</sub> = 9-(4-methoxyphenyl)carbazol-3-yl; R<sub>7</sub> = R<sub>8</sub> = H;

n =

0] and a polycarbonate resin to give a composite electrophotog. plate which showed high sensitivity to a W lamp as well as a **semiconductor** laser (780 nm).

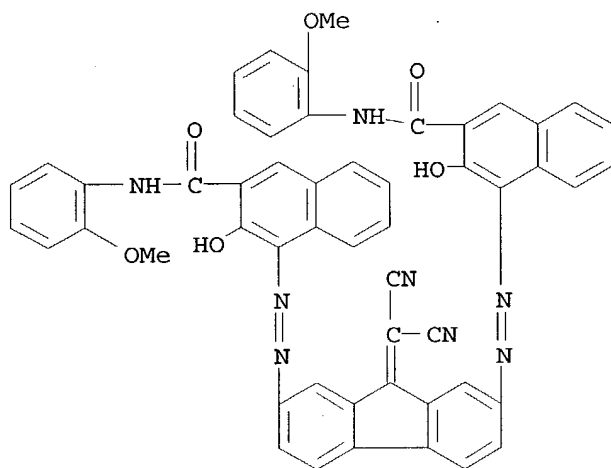
IT 93754-45-1 97816-78-9 97931-70-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

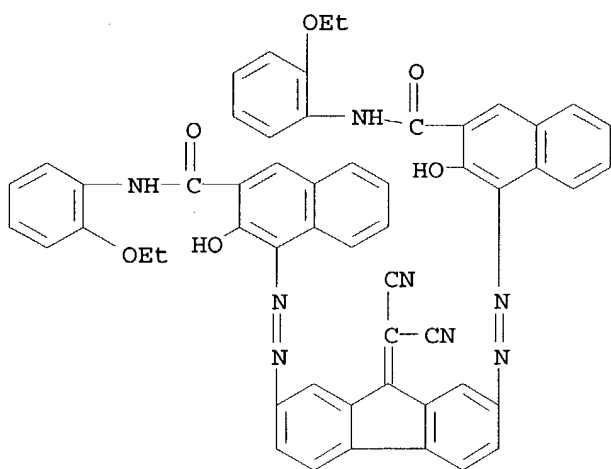
RN 93754-45-1 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)



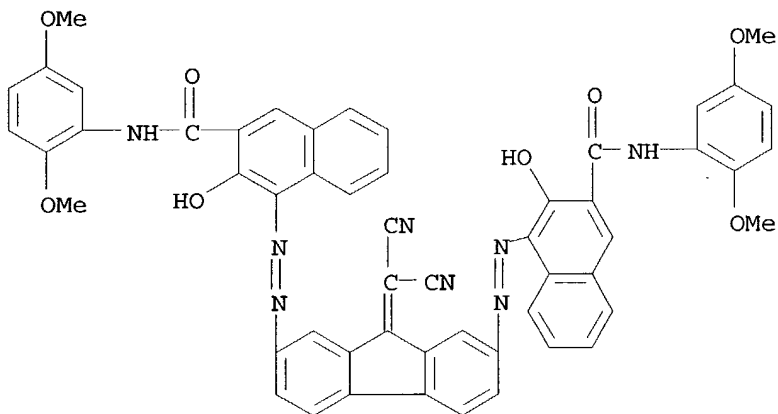
RN 97816-78-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2-ethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



RN 97931-70-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04

ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating bisazo pigment; hydrazone electrophotog charge transfer agent

IT Dyes

(bisazo, electrophotog charge carrier-generating)

IT Photography, electro-, photoconductors

(composite, charge carrier-generating bisazo pigments and hydrazone derivative type charge carrier-transfer agents for)

IT 93754-45-1 97008-60-1 97816-78-9 97931-70-9

98058-50-5

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

IT 87866-72-6 87866-84-0 87866-88-4 87866-90-8 92827-92-4  
 98058-51-6 98058-52-7  
 RL: USES (Uses)  
 (electrophotog. charge-carrier-transfer agent)

IT 88066-48-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and diazotization of)

IT 15538-90-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reduction of)

IT 88701-07-9P  
 RL: PREP (Preparation)  
 (preparation of, as electrophotog. charge-carrier-generating pigment)

IT 109-77-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with dintrofluorenone)

IT 92-77-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with hexafluorophosphate of diazotized  
 diaminodicyanomethylidenefluorene dihydrochloride)

IT 31551-45-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with malononitrile)

L154 ANSWER 59 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:513327 CAPLUS  
 DOCUMENT NUMBER: 103:113327  
 TITLE: Electrophotographic photosensitive materials  
 PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102633	A2	19850606	JP 1983-210629	19831109
JP 03047497	B4	19910719		

PRIORITY APPLN. INFO.: JP 1983-210629 19831109

GI For diagram(s), see printed CA Issue.

AB Composite electrophotog. photosensitive materials contain  
 charge-carrier-generating bisazo compound I (R = II, III, IV, V; A = aromatic  
 carbocyclic or heterocyclic ring; R' = H, OH, CO<sub>2</sub>R<sub>5</sub>, SO<sub>3</sub>H, carbamoyl,  
 sulfamoyl; R<sub>2</sub> = H, alkyl, amino, carbamoyl, CO<sub>2</sub>R<sub>5</sub>, CN; R<sub>3</sub> = aryl; R<sub>4</sub> =  
 alkyl, aralkyl, aryl; R<sub>5</sub> = organic moiety) and amine ≤ 20 mol/mol-I.  
 The electrophotog. materials show good sensitivity and durability. Thus,  
 an Al-laminated polyester film support was coated with a composition  
 containing I  
 (R = VI) (2g) and HOCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub> (1.5 mol), and coated with a composition  
 containing  
 3-(p-methoxystyryl)-9-(p-methoxyphenyl)carbazole and a polycarbonate resin

to give an electrophotog. plate which showed good sensitivity toward W lamp and a semiconductor laser (780 nm).

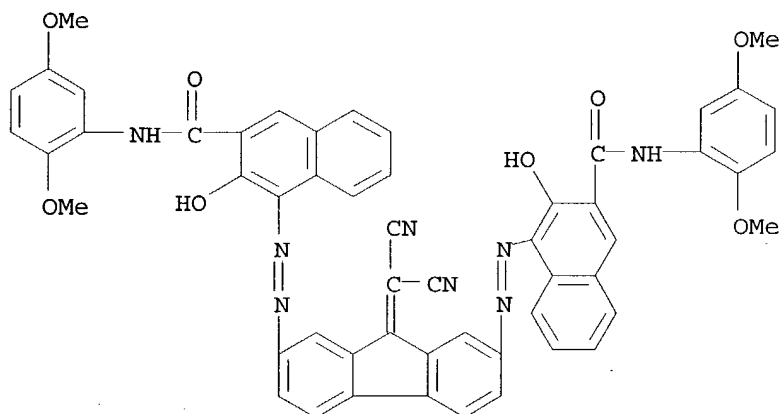
IT 97931-70-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

RN 97931-70-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2,5-dimethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04

ICS G03G005-09; H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating bisazo pigment; amine electrophotog sensitizer

IT Photography, electro-, sensitizers

(amines as, for composite photoconductors containing bisazodicyanomethylidenefluorene pigments)

IT Photography, electro-, photoconductors

(composite, charge-carrier-generating bisazo pigments for)

IT 88701-08-0 93754-52-0 97931-70-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

IT 1159-53-1 41578-12-5 57609-72-0 84746-59-8

RL: USES (Uses)

(electrophotog. charge-carrier-transfer agent)

IT 102-71-6, properties 107-15-3, properties 109-89-7, properties

110-89-4, uses and miscellaneous 141-43-5, properties

RL: PRP (Properties)

(electrophotog. sensitizer)

IT 88066-48-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and diazotization of)

IT 15538-90-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reduction of)

IT 88701-07-9P  
 RL: PREP (Preparation)  
 (preparation of, as electrophotog charge-carrier-generating pigment)

IT 109-77-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with dinitrofluorenone)

IT 92-77-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with hexafluorophosphate salt of diazotized  
 diaminodicyanomethylidenefluorene bis(hydrochloride))

IT 31551-45-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with malononitrile)

L154 ANSWER 60 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1985:496343 CAPLUS

DOCUMENT NUMBER: 103:96343

TITLE: Electrophotographic photosensitive materials

PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60102634	A2	19850606	JP 1983-210622	19831109
JP 03000624	B4	19910108		
US 4599287	A	19860708	US 1984-669696	19841107
EP 144791	A2	19850619	EP 1984-113489	19841108
EP 144791	A3	19860205		
EP 144791	B1	19920115		

R: DE, FR, GB

PRIORITY APPLN. INFO.:

JP 1983-210622	19831109
JP 1983-210623	19831109
JP 1984-108226	19840528
JP 1984-108228	19840528

OTHER SOURCE(S): CASREACT 103:96343

GI For diagram(s), see printed CA Issue.

AB Composite electrophotog. photosensitive materials contain a bisazo compound I (R = II, III, IV, V; A = aromatic carbocycle or heterocycle; R1 = H, OH, CO2R5, SO3H, carbamoyl, sulfamoyl; R2 = H, alkyl, amino, carbamoyl, CO2R5, CN; R3 = aryl; R4 = alkyl, aralkyl, aryl; R5 = organic moiety) in the charge-carrier-generating phase and a styrene derivative VI (R6, R7 = alkyl, Ph; R8 = Ph, naphthyl, anthryl, fluorenyl, heterocyclyl; R9-R12 = H, halo, alkyl, alkoxy, alkylamino; R6 and R7 may be substituted with alkyl, alkoxy, or Ph; R8 may be substituted with alkyl, alkoxy, halo, OH, or Ph) in the charge-carrier-transfer phase. The electrophotog. materials show high sensitivity (especially toward semiconductor lasers) and good durability. Thus, an Al laminated polyester film support was coated with I (R = VII) and poly(vinyl butyral), and coated with a composition containing

VI

(R6 = 4-MeOC6H4; R7 = R8 = Ph; R9-R12 = H) and a polycarbonate resin to give an electrophotog. plate having excellent sensitivity towards W lamp and a semiconductor laser (780 nm).

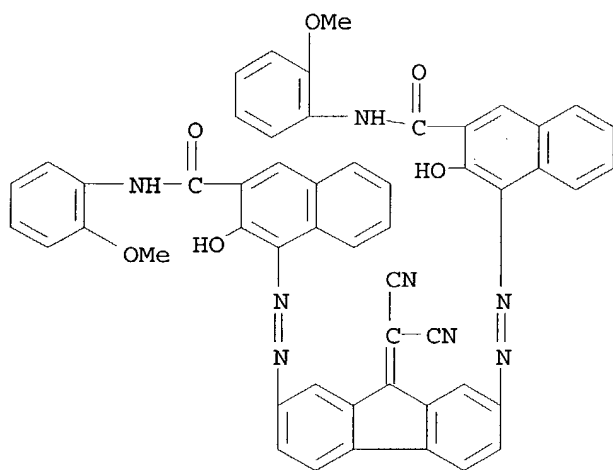
IT 93754-45-1 97816-78-9

RL: USES (Uses)

(electrophotog. charge-carrier-generating pigment)

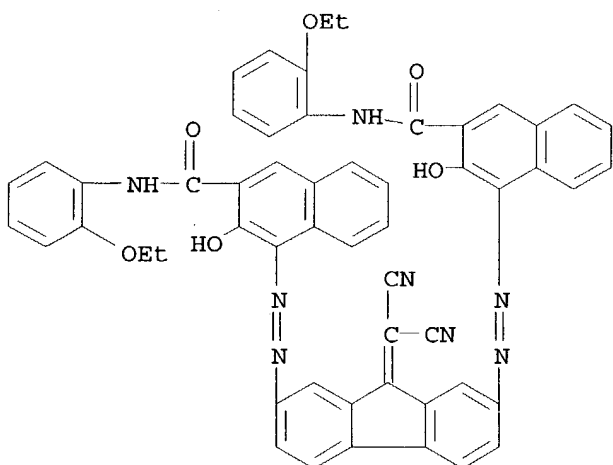
RN 93754-45-1 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[3-hydroxy-N-(2-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 97816-78-9 CAPLUS

CN 2-Naphthalenecarboxamide, 4,4'-[[9-(dicyanomethylene)-9H-fluorene-2,7-diyl]bis(azo)]bis[N-(2-ethoxyphenyl)-3-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G03G005-04

ICS H01L031-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electrophotog charge generating bisazo pigment; aminostyrene electrophotog



charge transfer agent; styrene

IT Photography, electro-, photoconductors  
(composite, charge-carrier-generating bisazo pigments and  
charge-carrier-transporting styryl compds. for)

IT 88701-08-0 88701-09-1 93754-45-1 93754-52-0  
97816-78-9  
RL: USES (Uses)  
(electrophotog. charge-carrier-generating pigment)

IT 7378-54-3 79580-07-7 89114-74-9 89114-76-1 89114-77-2 89115-01-5  
91274-12-3  
RL: USES (Uses)  
(electrophotog. charge-carrier-transfer agent)

IT 107-15-3, properties 109-73-9, properties 141-43-5, properties  
RL: PRP (Properties)  
(electrophotog. charge-carrier-transfer layer containing styryl compound  
and)

IT 15538-90-6P  
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(prepare and reduction of)

IT 88066-48-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and diazotization of)

IT 88701-07-9P  
RL: PREP (Preparation)  
(preparation of, as electrophotog. charge-carrier-generating pigment)

IT 109-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dinitrofluorenone)

IT 92-77-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with hexafluorophosphate salt of diazotized  
diaminodicyanomethylidene fluorene bis(hydrochloride))

IT 31551-45-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with malononitrile)

L154 ANSWER 61 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1983:91041 CAPLUS  
DOCUMENT NUMBER: 98:91041  
TITLE: Trisazo benzocarbazole compounds for  
electrophotography  
INVENTOR(S): Ohta, Masafumi  
PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
SOURCE: Ger. Offen., 48 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

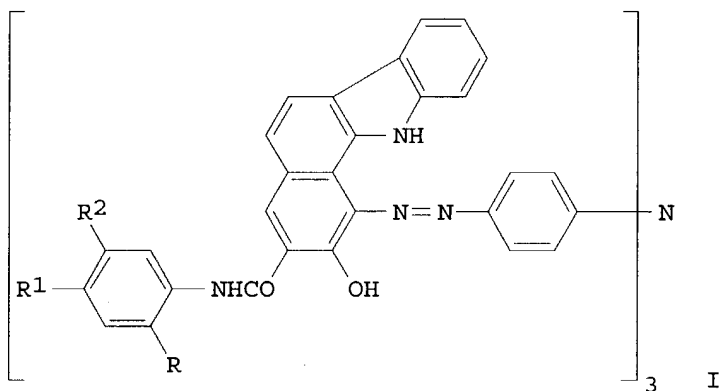
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3219765	A1	19821223	DE 1982-3219765	19820526
DE 3219765	C2	19840308		

JP 57195767	A2	19821201	JP 1981-80151	19810528
JP 01002146	B4	19890113		
JP 57195768	A2	19821201	JP 1981-80161	19810528
JP 02004624	B4	19900129		
JP 57203061	A2	19821213	JP 1981-88102	19810610
JP 01058180	B4	19891211		
JP 57203062	A2	19821213	JP 1981-88111	19810610
JP 01058181	B4	19891211		
JP 57206658	A2	19821218	JP 1981-90611	19810612
JP 01058182	B4	19891211		
JP 58122967	A2	19830721	JP 1982-5682	19820118
JP 03056263	B4	19910827		
US 4507471	A	19850326	US 1982-379688	19820519
FR 2506776	A1	19821203	FR 1982-9435	19820528
FR 2506776	B1	19861226		
GB 2100743	A1	19830106	GB 1982-15763	19820528
GB 2100743	B2	19850515		

## PRIORITY APPLN. INFO.:

JP 1981-80151	19810528
JP 1981-80161	19810528
JP 1981-88102	19810610
JP 1981-88111	19810610
JP 1981-90611	19810612
JP 1982-5682	19820118

GI



AB The preparation and properties of black crystalline compds. of general structure I

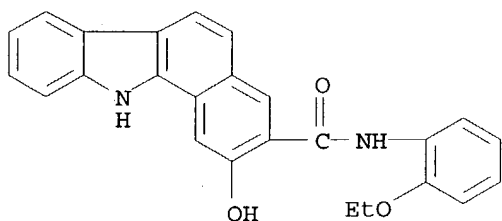
are described, where R = H, Me, Et, or EtO, R1 = H, Me, or Et, and R2 = H, Me, or Cl. I are useful as charge carrier-forming pigments in multilayer electrophotog. plates. Thus, (4-H<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>)<sub>3</sub>N [5981-09-9] was treated with aqueous HCl-NaNO<sub>2</sub> to give the corresponding hexazonium trifluoroborate [69474-93-7], which was coupled with 2-hydroxy-3-(phenylcarbamoyl)benzo[a]carbazole [84809-05-2] in DMF-H<sub>2</sub>O to form crystalline I (R = R1 = R2 = H) [84809-13-2]. Eight other I were similarly prepared, and IR and x-ray diffraction spectra for each compound are shown. Electrophotog. plates containing I exhibited sensitivity in the **semiconductor** laser wavelength region that was >10 times greater than that of plates containing several known charge carrier-forming compds.

IT 84809-09-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
(coupling of, with hexazotized tris(aminophenyl)amine)

RN 84809-09-6 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, N-(2-ethoxyphenyl)-2-hydroxy- (9CI)  
(CA INDEX NAME)

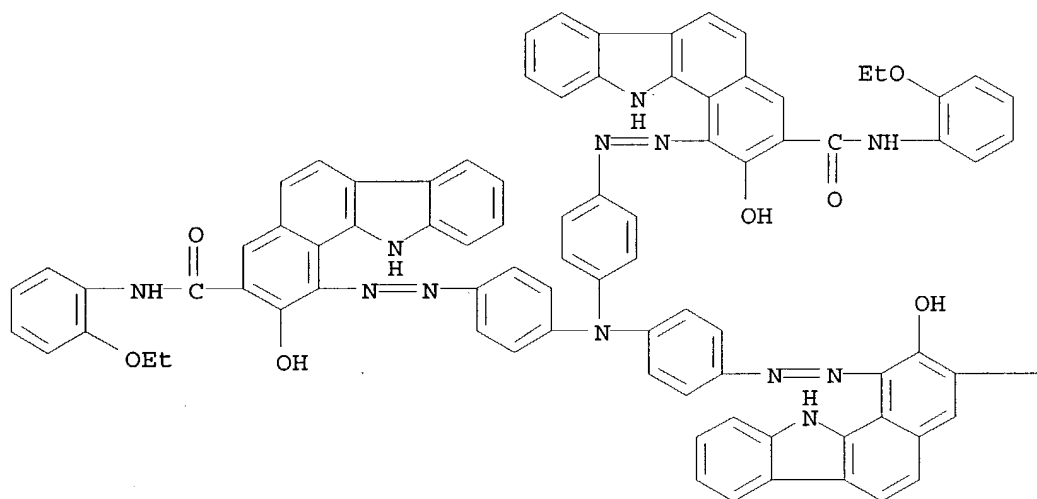


IT 84809-03-0P

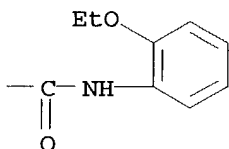
RL: IMF (Industrial manufacture); PREP (Preparation)  
(preparation, spectra and charge carrier-generating properties of, for electrophotog.)

RN 84809-03-0 CAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 1,1',1''-[nitrilotris(4,1-phenyleneazo)] tris[N-(2-ethoxyphenyl)-2-hydroxy- (9CI) (CA INDEX NAME)



PAGE 1-A

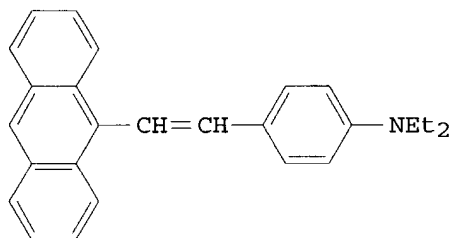
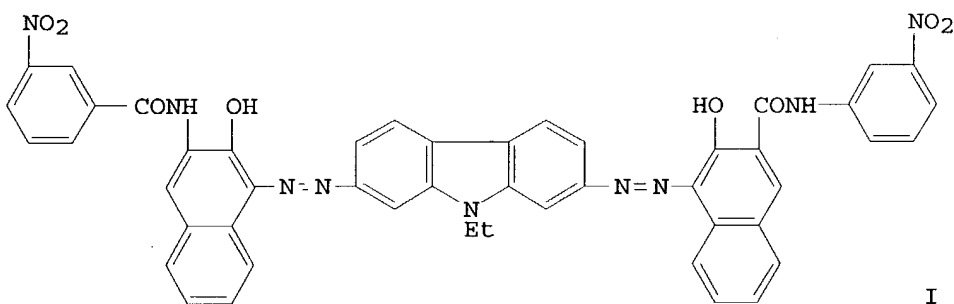


- IC C09B035-378; C07D209-88; G03G005-06
- CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
- Section cross-reference(s): 74
- ST trisazo compd electrophotog synthesis; azo compd electrophotog synthesis; carbazole trisazo compd synthesis; benzocarbazole trisazo compd synthesis; phenylcarbamoylbenzocarbazole azo compd; triphenylamine trisazo compd synthesis; electrophotog charger carrier former
- IT Photography, electro-, photoconductors  
(composite, charge carrier-generating agents for, trisazo compds. as)
- IT Photography, electro-, plates  
(composite, charge carrier-generating trisazo pigments for)
- IT Azo compounds  
RL: USES (Uses)  
(tris-, manufacture of, as charge carrier-generating agents for composite electrophotog. plates)
- IT 5981-09-9  
RL: USES (Uses)  
(coupling of hexazotized, with benzocarbazole derivs.)
- IT 84809-05-2 84809-06-3 84809-07-4 84809-08-5 **84809-09-6**  
84809-10-9 84809-11-0 84809-12-1 84814-54-0  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(coupling of, with hexazotized tris(aminophenyl)amine)
- IT 69474-93-7P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and coupling of, with benzocarbazole derivative)
- IT 84809-00-7P 84809-01-8P 84809-02-9P **84809-03-0P**  
84809-04-1P 84809-13-2P 84814-51-7P 84814-52-8P 84814-53-9P  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(preparation, spectra and charge carrier-generating properties of, for electrophotog.)

TITLE: Multilayer electrophotographic plates  
 INVENTOR(S): Yasumori, Akiyoshi; Kato, Tatsuya; Enomoto, Takamichi  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 54080750	A2	19790627	JP 1977-148967	19771212
JP 63018183	B4	19880418		
PRIORITY APPLN. INFO.:			JP 1977-148967	19771212

GI



AB In preparing multilayer electrophotog. plates having an organic charge-generating pigment-containing layer and a charge-transfer layer, an inorg. n-type **semiconductor** is dispersed in the charge-generating layer to improve sensitivity and to reduce the residual charge. The electrophotog. plates also have improved service life. Thus, a polyester 0.1, the pigment I 0.1, and THF 15 g were ball-milled, then ZnO 0.015 g was added to the dispersion, and the dispersion was coated on an Al-laminated polyester support. Subsequently, a composition containing II

5 and

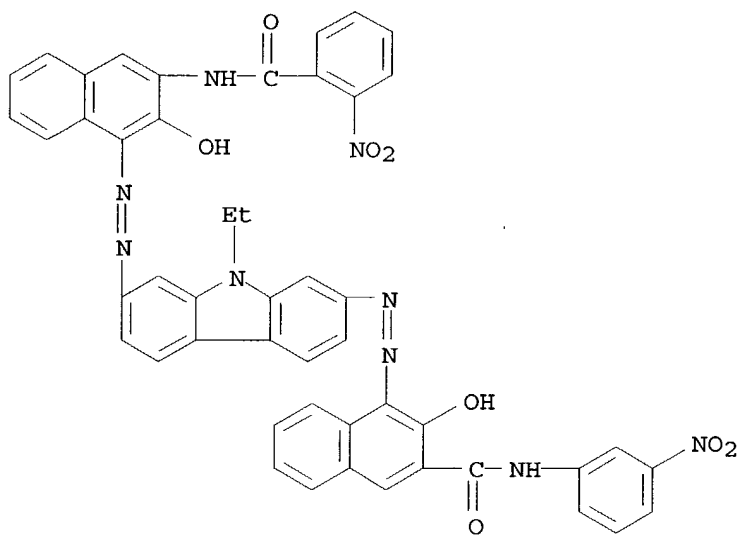
a polycarbonate resin 5 g was coated on the pigment-containing layer to give an electrophotog. plate whose saturation voltage, initial voltage, E1/2 sensitivity, and residual charge were 820, 510 V, 3.2 lx-s, and 0 V, resp., vs. 1100, 750 V, 4.3 lx-s, and 20 V, resp., for a ZnO-free control.

IT 71836-13-0

RL: DEV (Device component use); USES (Uses)  
(multilayer electrophotog. plate containing)

RN 71836-13-0 CAPLUS

CN 2-Naphthalenecarboxamide, 4-[[[9-ethyl-7-[[2-hydroxy-3-[(2-nitrobenzoyl)amino]-1-naphthalenyl]azo]-9H-carbazol-2-yl]azo]-3-hydroxy-N-(3-nitrophenyl)- (9CI) (CA INDEX NAME)



IC G03G005-04

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic Processes)  
ST electrophotog plate multilayer

IT Photography, electro-, plates  
(multilayer, sensitization of, by zinc oxide)

IT 1314-13-2, uses and miscellaneous 71530-63-7 71836-13-0

RL: DEV (Device component use); USES (Uses)  
(multilayer electrophotog. plate containing)

=>